Original Articles.

VACCINATION EFFICIENTLY PERFORMED.*

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One hundred fifteen years ago, Dr. Edward Jenner published "An Inquiry into the Variolae Vaccinae," and showed that vaccinal inoculation protected the human organism against smallpox. Subsequent experience has substantiated his observation, and variola no longer prevails in countries where vaccination is regularly and efficiently performed.

Where this important sanitary measure is irregularly practiced, as in the United States, the disease recurs at intervals, less severe than in former times, but nevertheless, with considerable mortality and at large cost to the community; as examples, in 1900, the cost of municipal control of 171 cases of smallpox to the city of New Bedford was $23,000; in the spring of this present year, a few cases in our city cost about $10,000.

Smallpox has prevailed in this part of Bristol County nearly every year since 1900, limited almost entirely to people who have come from that part of Canada called Arcadia, and who are without exception, unvaccinated. As their route of entrance is by rail they are not subject to the measures imposed at points of entry along the coast. Their children attend parochial schools and are not amenable to our statutory vaccinal requirement. The exceptions have been persons whose protection had long since run out.

The progress of preventing smallpox in a country like ours where vaccination is optional after the age of entrance to public schools, is rendered difficult by persons who would have others believe that the procedure is useless, harmful or fatal. Organized opposition to vaccination appears to have had its inception in Jenner's England, where compulsory vaccination may now be evaded by a declaration of conscience. An English gentleman could offer no other explanation for this opposition than the well known love of the English to protest against law. Physicians, unburdened by knowledge and unrestrained by conscience, join the ranks, to sell exemption certificates, or with a keen eye to business, as the leading Boston anti-vaccinist, who specializes in a line of "medical practice" which he cannot advertise in this state through legislative restriction.

So long as the opponents confine their arguments to theories, no harm is done. Through a publicity service they keep informed of all illnesses and deaths which by even the wildest flight of fancy could be ascribed to vaccination. Their effective arguments against vaccination are based on the severe sore arms and loss of wage subsequent to vaccination improperly performed in factories and tenement houses in time of epidemics. We can more fully appreciate the statement of an anti-vaccinist candidate for the legislature, this fall, who said: "I expect an increased vote on account of the many vaccinations done in the mills." The real danger from this agitation is that the legislative campaign may be successful and annul our only existing law on the subject, for our legislators may be moved by arguments based on prejudice and falsehood as by truth.

The manner of combatting opposition to vaccination is to vaccinate well, and I would predict that twenty years of efficient vaccination in this state would silence all opposition.

Vaccinia is a disease communicable by inoculation, pursuing a definite course, and conferring immunity against smallpox for a varying period. Peculiar resistance may be manifested according to previous diseases or vaccinations, to innate or inherited characters, or to a number of intercurrent circumstances. In people previously unvaccinated, the eruption begins seventy-two hours after inoculation as a papule, and is fully apparent on the fifth day as a vesicle; on the seventh it has reached maturity, when it is a flat umbilicated vesicle surrounded by a rose red areola. This is the positive and unvarying picture of a successful primary vaccination, "A section of a pearl on a rose leaf." The celebrated wit, Charles James Fox, meeting Dr. Jenner in a large gathering said to him, "Tell me, Dr. Jenner, what is your vaccination like?" Exactly like a section of a pearl on a rose leaf," was the reply.

Crusting of the vesicle begins about the eleventh day and the crust is exfoliated from the twenty-first to the twenty-eighth day, leaving an indelible and characteristic scar, at first red, bleaching with time to white, sharply defined, with distinct pitting.

The "raspberry excrescence" is not infrequently seen three to seven days after inoculation. It becomes red, hard, and naevoid and may persist for months, leaving no scar, and conferring no protection. Its occurrence demands another operation.

THE TECHNIQUE OF VACCINATION.

To learn the technique of authoritative sources, a questionnaire was sent to the four medical schools in Massachusetts. The following replies were received:

Harvard, informant, Dr. M. J. Rosenau. Vaccination is taught practically and theoretically. Technique, incision; sharp needle—really a scratch. Vaccine, that licensed by the govern-

* Read at a meeting of the South Bristol District Medical Society, Fall River, November 13, 1913.

ment. Each student vaccinates one or more persons. Studies progress of the take to scar formation. Two insertions are made, each about three quarters of an inch long and about one inch apart. Students also visit the vaccine farm and see the propagation of the virus. "I spend perhaps, all told, six hours upon the subject of vaccination."

Dr. Rosenau is emphatic for incision and says that scarification is discouraged as dangerous; that it is forbidden by law in Germany.

Tufts, informant, Dr. W. R. P. Emerson. Taught practically at the clinic. Technique, scarify with needle; apply a drop of vaccine and allow to dry; gauze and adhesive tape dressing. Two scarifications are made. Mass. state vaccine is advised. Two insertions are made, ¼cm. in diameter, 1½ inch apart. Patients return in one week; students see them in all stages.

Similar inquiries with an additional question on revaccination were sent to the Surgeon Generals of the War, and the Navy Department, and Public Health Service with these responses:

War Department, informant, Capt. Albert G. Love. Technique: area cleansed with green soap then alcohol; dried with cotton or gauze; abrasions made by scraping or scratching on the selected area. Abrasions, three, one inch apart. Instrument ivory point or sterile scalped. Dressing, sterile gauze, perferably, sometimes vaccine shield. Dressing changed as often as necessary to keep it clean and in good condition; if the vaccination is successful the second dressing is always sterile gauze. Source of vaccine, large manufacturers of the country. If primary vaccination fails, the process is repeated in a reasonable time and is again repeated if the second attempt fails. In practice, practically all men upon enlistment and re-enlistment are vaccinated.

Navy Department, Surgeon General C. F. Stokes. No uniform technique is prescribed. Vaccine points usually employed; source varies. All recruits are vaccinated and repeated until the medical officer is convinced that the person is protected. Crews of ships are inspected from time to time for vaccination and in the event of an epidemic all persons are vaccinated.

Public Health Service, Asst. Surgeon General J. W. Kerr. "There is a general agreement that the best method of vaccination is the simplest and in this respect scarificaton has a distinct advantage; the use of vaccination shields should be avoided and aseptic bandages used."

This department furnishes the information that government licenses for propagation of vaccines have been issued to nine manufacturers.

Absolute cleanliness with a minimum of injury to the skin with aseptic protection during the development of the vesicle until scar formation, are essential to a proper vaccination. Rosenau[1] writes: "The operation may be compared to the transfer of a culture in a bacteriological laboratory. Precisely similar precautions to prevent contamination must be used in both cases. Vaccination must be considered as a surgical problem. No person unfamiliar with surgical cleanliness should be permitted to perform this "little" operation. "The scar should not be regarded as a deformity; to the sanitarian a typical vaccine scar is a sanitary dimple."

Dr. William Osler[2] refuses to vaccinate on the leg unless the patient will agree to remain in bed during the course of the vaccination.

After a discouraging experience with leg vaccination, I now refuse to vaccinate unless the deltoid site be agreed upon. Here inspection is easy, trauma is less likely to occur, and if infection follows, it runs a milder course.

I mention the shield only to condemn it. It is bulky, and invites violence. It often becomes loosened and scrapes the vesicle; it prevents radiation and produces the effects of a poultice; and among the poor it is loaned about to different children, often heavily coated with purulent secretions.

The arm having been dressed after the operation, the patient should return in seven days, or earlier, should constitutional or severe local symptoms appear. The dressing should be removed and the physician look for "a section of a pearl on a rose leaf." If present a bland ointmet with sterile dressing is applied, and in this manner the lesion is cared for until it is dry. If the vesicle has not matured and a mere scratch remain, if we revaccinate the patient in a week or two we may expect to see at the site of the first attempt an awaking which aroused and runs a short course synchronously with the second inoculation, through local anaphylaxis.

When the scar is seen then may a certificate of successful vaccination be given, and not until then. A vaccinated patient should be under the observation and guidance of the vaccinator until all chance of coccogenous infection is past.

Three illustrative cases.

CASE 1. B. K., aged four; vaccinated in the last week of May, 1912; tetanic convulsions appeared June 15; brought to hospital on 16, very dirty, with foul vaccinal wound; no sign of having worn protective dressing; died on 17; death certificate signed "Tetanus following vaccination."

CASE 2. Mary B. March 17, 1913, her four-year-old son was found ill with smallpox; she was "vaccinated" (her arm was scratched with a point), and she accompanied the little son to the hospital to care for him; she developed a severe cellulitis from the point of "vaccination" involving the whole arm, and on April 5 became ill with smallpox.

CASE 3. E. B., thirty years old; four times he has been vaccinated in cotton mills during four epidemics, lost altogether eleven weeks' work, convalescing; his mother has smallpox of fourteen days' duration; the son became ill today (Aug. 25, 1913).

In the first case, B. K., it seems that the most elementary attention to cleanliness could have prevented the tragic sequence.

The same can be said of M. B. The coccogenous infection killed the vaccine bodies, and variolous infection followed.

E. B. has my heartiest sympathy, in that risking his life, in four vaccinations in a dusty mill, all unsuccessful, with eleven weeks of suffering and loss of wage, he did not acquire immunity; I rejoice that he survived and congratulate him on finally achieving smallpox, which will put him beyond the reach of factory vaccinators in the future. You of Fall River appreciate how poorly factory vaccination is done, and the invalidism that follows. The bad results are interpreted by the laity as evidences of the true vaccinal course, and as the operator does not see the patient a second time, the unhappy victim goes on his way to expose himself perhaps recklessly to infection. If he have variola, his experience is capitalized by the opponents of vaccination.

In Dr. Jenner's time it was believed that the immunity conferred by vaccination lasted through life; subsequent observation has shown this to be within wide ranges.

Theobald Smith[3] has recently explained the variation in this way: "It is now well known that vaccination protects only for a limited period. The body forced to produce a variety of antibodies under pressure is not likely to continue such manufacture indefinitely after the stimulus is removed. Nature is not lavish in producing unused commodities. Animals naturally immune do not carry an appreciable quantity of immune bodies about. Their protection is guaranteed by more economical processes of life of which we know as yet very little. The length of time elapsing between vaccination and exposure, therefore, is of great significance in the success or failure of protection. . . . There is the principle of active immunization itself which must be carefully kept before us. When we discuss vaccination as a preventive, we mostly fail to take into account that we are asking something of the individual to be vaccinated, rather than giving him some thing. We are asking his tissues to go through the preliminary process of training to meet some future emergency. Vaccination is a process of education for being better prepared to meet an invasion at once, before it has grown to any dimensions. We have no reason to suppose that the characteristics of the body will be materially and permanently altered by such a training. If the body is below par in the supplying of immune bodies, it is likely to remain so, despite the vaccination. Of two individuals treated preventively alike, one may be able to cope successfully with a large or more virulent dose than the other. The plane of immunity of both is raised by vaccination, but unequally so, and in proportion to their natural endowments."

REVACCINATION.

Kitasato[4], 931 revaccinations.

After	1 year	14	per cent.	successful
"	2 years	33	" "	"
"	3 "	47	" "	"
"	4 "	57	" "	"
"	5 "	51	" "	"
"	6 "	64	" "	"
"	7 "	73	" "	"
"	8 "	80	" "	"
"	9 "	85	" "	"
"	10 "	89	" "	"

Lescohier[5] in a series of 251 revaccinations obtained practically the same results. Millard[6] states that the government report of the German Confederacy shows from 91 to 93% successful revaccinations after ten years. It is manifest that protection is exhausted in one half of all people five years after inoculation and in the rest at the latest about the tenth year. The power to modify the disease continues into later life.

Vaccination is clearly indicated at five or at the latest, ten year intervals. The results of periodic vaccinations support this statement. A recent writer estimated that the unvaccinated in England was rapidly increasing, due to parents availing themselves of the "conscience clause" and that a few years would prepare the country for a wide spread epidemic. Since our state law requires vaccination only as a requirement on entering school, and except on possible exposure, no revaccination is done, it is evident that our cities are practically unprotected. True, our immigrants before mentioned have borne the burden, so far being virgin soil for that seed. The devaccinated have some immunity and have shown the resistance.

The local response to revaccination varies in proportion to the amount of ferment remaining from the reaction induced by the primary inoculation. We may observe the typical primary picture, showing complete loss of immunity; or a rapid course of a few days; or a small papule or transient erythema may be the only sign, and leaving no scar.

Dr. Jenner and his immediate successors made one puncture or incision. In seeking to prolong immunity when smallpox among the vaccinated occurred multiple incisions were employed, and have been generally employed throughout Europe ever since. Bonn[7], Immermann[7], Pfeiffer[7], Seaton[8], Simon[8], Roger[9] and Cory[10] agree that a constant relation exists between the number of scars and the degree of immunity afforded.

The figures of Marson are familiar:

	Cases.	Deaths.	Mort. %
Unvaccinated	2654	996	37.2
Stated to be vaccinated but with no scar	290	74	25.5
One scar	1357	125	9.2
Two scars	888	53	5.9
Three scars	274	10	3.6
Four or more scars	268	3	1.1

Rosenau in his recent text book says: "The number of incisions has an important bearing on the probability of the take as well as protection; it is not wise to depend on one; the relation to the number of vesicles and the amount of reaction to the degree and length of immunity has not been worked out."

American vaccinators generally have been content with one puncture and regard additional punctures as assurances of a successful take.

Size of Scar to Immunity: Russell, Marson and Gayton are quoted by Hanna[11] as believing that the quality and size of the scar area have an important bearing on the amount and extent of the eruption and consequently on the severity of the disease. Corlett[12] believes the protection to be proportional to the size of the scar.

Hanna in a study of the scar area in 943 revaccinated persons who developed smallpox in Liverpool drew the same conclusions.

These phases seemed to me to be of unusual interest and well worth further investigation. Marson's figures, and the continued European practice of multiple incisions with the low incidence of smallpox would warrant further study. For this purpose these questions were submitted to two biologists and two clinicians:

Is greater vaccinal immunity conferred by multiple incisions?

Is the degree of resulting immunity to be estimated by the diameter of the scar?

Dr. Simon Flexner replied that he was unable to answer the questions.

Dr. Alvah H. Doty answered: "I am entirely satisfied that multiple punctures are unnecessary and that all the immunity that vaccination affords can be obtained by a single scarification properly performed with tested virus. This practice has been followed by the Department of Health of New York with the most satisfactory results and is accepted throughout the U. S. and is becoming generally accepted throughout Europe.

"I do not believe that the degree of immunity can be estimated by the diameter of the scar or scars provided the latter are of reasonable size and typical. . . I believe it is unnecessary and a mistake to make the scarification too large. The success of the operation depending rather on the character of the virus and having it well rubbed in without the too free escape of blood."

Dr. Theobald Smith: "I would say that immunity is strengthened in proportion to the number of vaccinal punctures. This fact has been determined by observation. I am not sure that we can explain it on the basis of our present knowledge of immunity.

"As regards the size of the scar, a number of factors may enter. The pustule may have been disturbed; the scab may have been torn off and the ulcer increased in size. It is also possible that when two vesicles are close together they may fuse and thereby increase the size of the scar. The final scar may be increased by injury due to secondary infection of the vesicle. In any of these cases, it would be difficult to say how far the immunity had been influenced."

Dr. John H. McCollom: "It seems to me that a longer immunity is conferred by making three scarifications. . . I can give you no definite figures on the matter, but after a very careful study of the whole subject, I am thoroughly convinced that there should always be three insertions of virus when a person is vaccinated. The experience of the German Empire is confirmatory. It is the custom there in many of the cities to vaccinate a person on each arm and to make three incisions. I never yet have seen a person with six scarifications, no matter how long a time had elapsed since vaccination was performed, have smallpox.

"In regard to your second question so far as the appearance of the scar is concerned, that is a question that cannot be definitely answered. Three reasonably good scars is a fairly sure indication of protection, but the mistake must not be made of thinking that because a person has a large scar, it is an indication of successful vaccination." Here follows the description of the scar resulting from a negative take and the letter concludes thus: "Physicians and the public must be carefully taught that vaccination is not such a simple matter; that it requires an expert to state definitely whether vaccination has been successful or not."

Vaccine: The State Board of Health has propagated and issued vaccine to the physicians of the state since 1904; in the years 1904-1912, 449,378 tubes were dispensed, and from Dec. 1, 1912 to Oct. 14, 1913, 102,942 tubes; a few complaints have been made, which on investigation have always been found to be based on errors of technique rather than to defects in the vaccine.

For more than a year I have used this vaccine exclusively on all patients and on myself. I have been able to get a take in every primary vaccination on the first trial with slight constitutional reaction.

CONCLUSIONS.

Vaccination is a surgical procedure; hence demands surgical asepsis.

The patient must be under the supervision of the physician until scar formation, when a certificate may be given.

He should be told that his immunity is for a limited time; if liable to exposure to be revaccinated.

As those countries are most free from smallpox where vaccination is regularly imposed, a revaccination of all persons in a state should be required at stated intervals.

Vaccination should be done with a minimum of trauma.

The experience of most observers warrants two or more incisions.

Vaccination efficiently performed protects against smallpox.

Vaccination efficiently performed silences opposition.

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CORRELATIONS OF CEREBRO-SPINAL FLUID EXAMINATIONS WITH PSYCHIATRIC DIAGNOSES. A STUDY OF 140 CASES.*

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THE scarcity of actual correlations between findings in the cerebrospinal fluid and psychiatric diagnoses in any considerable series of cases makes of value a review of the results in a large hospital for the insane. The object of the present study has been to discover of how much value examinations of the cerebrospinal fluid have been in changing, confirming or making more accurate the psychiatric diagnoses. The focal points of interest in this connection are, of course, the diagnosis of paresis and of cerebral syphilis. It may be said in a general way that this review has shown that paresis is not actually as frequent as would appear from purely clinical examination, and that the cases which are most likely to be mistaken for it are Korsakow's psychosis, cerebral arteriosclerosis and cerebral syphilis.

The method† adopted in this hospital is to have a Wassermann test made on the serum of each new patient unless this has been recently done in another institution. If the result is positive, and also in negative cases in which the symptoms or signs are suggestive, the cerebro-spinal fluid is examined for the Wassermann reaction, cytology and globulin content. Similar tests are being carried out also on old patients as rapidly as possible. The Wassermann reactions are done at the laboratory of serum diagnosis of the Harvard Medical School. The remainder of the examination, except the differential count, may be done by a non-medical laboratory assistant, who is familiar with blood counting and elementary chemistry.[1]

Statistics. The period chosen for study was the year ending Jan. 1, 1914. During this time 626 Wassermann reactions have been done on the sera of 618 patients, 445 of whom were admitted in 1913, and 173 before that time. The 1913 admissions form an unselected group from which may be estimated the frequency of syphilis in patients admitted to this hospital. The results are:

Wassermann reaction in the serum positive in 80 cases (18%).

Wassermann reaction in the serum negative in 362 cases (81.3%).

Wassermann reaction in the serum doubtful in 3 cases (0.7%).

This percentage of positive sera is lower than that of Paine,[2] who in his study of 200 consecutive admissions to the Danvers State Hospital found 24.5% positive.

During the year ending Jan. 1, 1914, 142 cerebro-spinal fluids from 140 patients have been examined for the Wassermann reaction. Of the 76 specimens from 1913 admissions, 33 (43.4%) gave a positive, 43 (56.6%) a negative result.

CLASSIFICATION.

We have used as a basis of our grouping of the fluids for study, the diagnosis given by the physician on the card accompanying the specimen to the laboratory, combined with the serological and cytological findings in the fluid. It must be emphasized in the beginning that in many instances this clinical diagnosis represents not the final, but the provisional diagnosis after the routine physical and mental examination, and is made with the reservation that it may be changed by the serological and cytological evidence.

* Worcester State Hospital Contribution No. 20 (1914. 1).

† METHOD.—The following is the method adopted for the Wassermann reaction: "Three antigens differing in fixing power are used for each specimen. Two are from human hearts and are reinforced with cholesterin; the third is the alcoholic extract from a fetal syphilitic liver. The complement, which is ten per cent. guinea-pigs' serum, is titrated daily to determine the unit; two units are used in the test. The amboceptor is titrated against .5 cc. of 10 per cent. guinea-pigs' complement in order to determine the amboceptric unit. Two units are used in the test. The amboceptor value is re-determined before each test. Washed sheep's corpuscles, are made up with normal salt solution to 5 per cent. suspension. Five-tenths of a cubic centimeter is used."

"The following controls are used for each test; a strongly positive syphilitic serum; a weakly positive serum; a negative serum, and tubes containing double the amount of each antigen."

"All doubtful cases are repeated at the next test, and if there is sufficient serum, varying amounts of antigen and serum are used, so that the resulting test rarely gives a doubtful result."

The Noguchi test for globulin was used, and was performed as follows: to 0.2 cc. of cerebro-spinal fluid, 0.5 cc. of a 10 per cent. solution of butyric acid in normal salt solution is added, and the mixture heated to boiling. One-half a cc. of normal sodium hydroxide solution is added, and the tube boiled slightly. A flocculent precipitate within 15 minutes indicates a positive result.

For the cell count in the fresh fluid, 0.1 cc. of 3 per cent. acetic acid and 1 cc. of cerebro-spinal fluid (well shaken) are mixed in a white blood counter, and ten fields are counted.

The sediment is prepared for differential counting by the Alzheimer method, *i.e.* by adding to 3 or 4 cc. of cerebro-spinal fluid twice its volume of 95 per cent. alcohol, centrifuging for one hour at high speed, and hardening the precipitate in absolute alcohol, followed by absolute alcohol and ether. The coagulum is removed from the centrifuge tube with a pointed glass rod; embedded in celloidin; cut in sections 7 m. thick, and stained with pyronin-methyl-green. In fluids showing a high or moderate pleocytosis 200 cells were counted. When cells were present in normal or slightly increased numbers, several sections (5 to 8) were gone over carefully and the actual number of each variety of cell present was stated.

The following classification was adopted:—

1. Cases diagnosed clinically as paresis, with which the findings in the fluid were on the whole in accord; 47 cases.

2. Cases diagnosed as paresis, in which the spinal fluid was negative or doubtful; 13 cases.

3. Cases in which the fluid was sent in to the laboratory with the diagnosis "Paresis?"; 20 cases.

4. Cases of organic dementia, including cerebral syphilis; 15 cases.

5. Alcoholic group, including both the acute and chronic forms; 10 cases.

6. Negative fluids from a variety of conditions, including manic-depressive insanity, dementia precox, imbecility, etc. These will not be further considered here.

It is obvious that in this group there is considerable latitude of judgment given on both the clinical and the laboratory sides, but at least it brings out the difficulties of diagnosis and the type of case in which the examination of the cerebro-spinal fluid is of particular value.

Group 1. In this group of 47 cases the Wassermann reaction on the serum was positive in 41 cases, negative in 4, and not recorded in 2 cases. The cerebro-spinal fluid was positive in 36 cases, negative in 9, and not recorded in 2 cases. The serum and fluid were both positive in 36 cases, the serum positive and fluid negative in 5 cases, the serum negative (tested twice) and fluid positive in one case; both serum and fluid negative in 3 cases, and one or the other not recorded in 2 cases.

All these fluids except one, however, showed a pleocytosis, and all but two contained plasma cells. All gave positive ammonium sulphate or Noguchi reactions, usually in high dilutions.

The Wassermann reactions, with the one exception mentioned have not been repeated in cases giving negative results. We should not consider that a single negative report on the fluid where it is impracticable to use "auswertung" methods[3] would weigh decisively against the diagnosis of paresis, if the cytology and clinical picture were typical. Cases showing a positive reaction in the serum and a negative one in the fluid, with a positive cytology, suggest, of course, cerebral syphilis in contradistinction to paresis, and cases in which the serum and fluid are both negative can be put in the paresis group only if the clinical and cytological evidence is very strong.

Schoenhals[4] has recently reported four cases of clinically typical paresis, in which serum and fluid gave repeated negative reactions, but in which the globulin test and the cytology were positive. In three of the cases the diagnosis of paresis was verified by autopsy. All the cases were of the slowly progressing form.

Two of the cases in this series having negative reactions in both serum and fluid are clinically advanced cases of the dementing form of paresis of at least one and a half and two and a half years' duration, respectively. One shows Argyll-Robertson pupils, tremors and practically normal knee kicks; the other slurring speech, rigid pupils, absent knee kicks, incoordination and a positive Romberg sign. The third is apparently an early case of the expansive form, with unequal pupils, reacting sluggishly to light, exaggerated and unequal knee kicks, unsteadiness and tremors.

Of the cases with the Wassermann positive in the serum and negative in the cerebro-spinal fluid, it may be said in a general way that the clinical picture and physical signs are more in accordance with paresis than with cerebral syphilis. In two cases the infection was respectively at least twenty and twenty-three years before the beginning of the psychosis; in the other three cases, the date of infection is unknown. The onset was gradual in all cases. Four of the patients are in an advanced stage of dementia, while the fifth is apparently an early case of the expansive form. Two of the patients have Argyll-Robertson pupils, two contracted pupils, inactive to light, and reacting only slightly to accommodation; the fourth has active pupils. One of the cases is of eleven years' duration.

Group 2. In the second group, those cases diagnosed clinically as paresis, but with doubtful or negative findings in the cerebro-spinal fluid, are two cases typical clinically of the expansive form of paresis. In one the fluid was taken on the day of death, in the other a week before. The sera were both positive, one fluid positive, the other negative. The globulin reactions were slight, the cell counts within normal limits and the sediments showed small numbers of lymphocytes and endothelial cells, with, in one case, possible plasma cells. Unfortunately, no autopsies were obtained, but it seems probable that the terminal stage of the disease may account for the indefinite findings.

In this group is also one other case with anomalous findings: a patient with the clinical symptoms of the dementing form of paresis, with pupils reacting sluggishly to light, exaggerated knee jerks, unequal facial innervation, and slight Romberg sign. The Wassermann reaction was negative in the serum, positive in the cerebro-spinal fluid. The examination of the first specimen of fluid showed a slight Noguchi reaction, a slight cell increase consisting of lymphocytes with a few doubtful plasma cells. The second specimen, taken a month later, gave negative ammonium sulphate and Noguchi reactions, a normal cell count and only a few lymphocytes in the sediment.

Another patient in this series has the following history: 58 years old, a painter for 25 years. In the Worcester State Hospital four and a half years. Has had both lues and numerous attacks of lead colic and has used alcohol in moderation. Six months before admission patient lost interest, became reticent, and irritable, and had attacks of dizziness. On admission he was quiet, euphoric, with delusions

of persecution and reference. He was imperfectly oriented for time and place; had but slight grasp on his surroundings and no insight. Memory was fair; speech somewhat slurring, pupils active, gait unsteady, knee jerks exaggerated, suggestive Romberg's sign. The patient is in a stationary condition, and although quite irritable, is able to work regularly. The Wassermann reaction was negative in the serum, doubtful in the cerebro-spinal fluid. The latter gave negative globulin tests, but a slight lymphocytosis. It is possible that this may be a case of lead encephalitis, although there is no very definite evidence to support this view.

The revised diagnoses in the other cases of this series are: Korsakow's psychosis, 3 cases; acute alcoholic delirium (terminating fatally, no autopsy), 1 case; dementia precox, 3 cases; unclassified depression, 1 case.

On examination of the histories of the patients who proved not to be paretics, the reason for the diagnosis of general praralysis is in most cases obvious. All the cases presented more or less suggestive physical signs, ranging from pupillary inequality, tremors or changes in the reflexes to sluggish reaction to light, speech defect, and in some of the alcoholic cases ataxia. In four cases also the Wassermann reaction in the serum was positive, in two others there was a history of syphilis, while in four syphilis was denied and the Wassermann reaction in the serum was negative. Another fact standing out prominently in this group is alcoholism, which was present in all but one of the cases.

Group 3, in which the fluids were sent to the laboratory with "question of general paralysis," comprises 20 cases. The diagnosis was confirmed in five cases by positive Wassermann reactions in serum and fluid and typical cytology in the latter.

One of these, a man of 61 years, had previously been diagnosed an early senile dementia. The diagnosis of paresis in this case has been substantiated by autopsy. Another patient, a woman, 54 years old, was admitted after a suicidal attempt, showing depression with psychomotor retardation, but without physical signs. The first diagnosis was manic-depressive, or a depression of arteriosclerotic origin. The patient is now dementing, is confused and excitable, and definite signs have appeared.

One case of clinical paresis examined a week before death showed conditions somewhat similar to the terminal cases mentioned in Group 2. The serum gave a negative reaction, the fluid a suggestion of a positive. The globulin was considerably increased, the cell count normal, and the sediment contained small numbers of lymphocytes and endothelial cells. The revised diagnoses in this group are: Alcoholic hallucinosis, 2 cases; acute alcoholic delirium, 1 case; alcoholic deterioration, 1 case; dementia precox, 6; manic-depressive with deterioration, 1 case; manic phase of manic-depressive insanity, 1 case.

A study of the histories of these cases brings out the frequency of the same three factors noted in the previous group,—physical signs, syphilis and alcohol. Ten patients in addition to those in whom the diagnosis of paresis was confirmed, had positive Wassermann reactions in the serum, one other gave a history of syphilis, one had signs of the disease, two denied lues and had negative Wassermann reactions, and in one case no clinical history was obtained. Nine patients, exclusive of the paretics, had a history of alcoholism.

Group 4, that of the organic dementias, contains 15 cases. The examination of the blood and cerebro-spinal fluid has helped considerably to differentiate the etiology of these cases. In seven the Wassermann reaction was positive in the serum, and negative in the cerebro-spinal fluid. Two of these showed negative globulin reactions and negative cytology, the other five a positive globulin reaction, lymphocytosis, with, in three cases, the addition of plasma cells. One of these patients, diagnosed paresis during life, was found at autopsy to have cerebral gummata. In one case in which the serum was not recorded the fluid gave a negative Wassermann reaction, but a positive globulin test and a lymphocytosis. One case presented a negative Wassermann reaction in the blood and a positive in the fluid, with increased globulin content and a lymphocytosis. In five cases the serum and fluid were entirely negative. In five of this group, therefore, in addition to the autopsied case, it seems permissible to assume a syphilitic etiology for the trouble.

Group 5. Ten fluids were sent in from patients with the diagnosis of various forms of alcoholic psychoses: acute alcoholic hallucinosis, 5 cases; chronic alcoholic hallucinosis, 1 case; alcoholic deterioration, 2 cases; Korsakow's syndrome and alcoholic traumatic, each 1 case. One of these cases had a positive Wassermann reaction in the serum, and a negative one in the fluid, but an increase of globulin and a lymphocytosis. One other had similar findings, with the exception that the Wassermann reaction in the fluid is not recorded. Four patients had positive Wassermann reactions in the serum, but cerebro-spinal fluids negative serologically and cytologically. One case with a negative reaction in the serum but in whom the Wassermann reaction in the fluid was not recorded, had a slight increase in globulin, but negative cytology. One case gave negative reactions to all the tests, and one an isolated positive Wassermann in the spinal fluid. One patient on whom the diagnosis of alcoholic hallucinosis was made, was found to have a positive Wassermann reaction in serum and cerebro-spinal fluid, an increase of globulin, and a pleocytosis, with the presence of plasma cells. It is impossible to exclude cerebral syphilis in the alcoholic cases who show a positive Wassermann reaction in the serum, a lymphocytosis and globulin reaction in the cerebro-spinal fluid, and doubtful physical signs.

DISCUSSION.

In reviewing these groups, it is found that among 80 patients in whom the diagnosis of paresis was made definitely or in whom a suspicion of it was entertained, in 57 at the most (71%) the diagnosis appears to be confirmed after examination of the serum and cerebro-spinal fluid. In the 60 cases in which the diagnosis was made definitely, it seems to be substantiated by serological and cytological evidence in 50 cases, or 83%.

On the other hand, three cases of paresis have been discovered by the routine examination of the serum and cerebro-spinal fluid in patients diagnosed on admission as senile dementia, arteriosclerotic depression and alcoholic hallucinosis.

The groups into which the non-paretic cases fall are: the alcoholic, 10; the dementia precox, 9; the manic-depressive, 2; unclassified depression and undiagnosed, 1 each. The revised diagnosis in all the cases, except possibly the Korsakows, would doubtless have been attained by clinical observation alone in the course of time, but for rapid elimination of the suspicion of paresis, the serological and cytological examination of the cerebro-spinal fluid is essential. It is also a common experience in large hospitals that there are on the chronic wards certain demented patients who are supposed to be long-standing cases of paresis, the diagnosis having been made on their admission in pre-Wassermann days, and never challenged. When their sera and fluids are examined, however, the results in a certain proportion of cases are found not to be in accord with the diagnoses and the cases appear on closer inspection to be cerebral arteriosclerosis or syphilis, or Korsakow's psychosis.

Correlations of clinical and autopsy findings from the Danvers[5] and the Worcester State Hospitals[6] in pre-Wassermann days have shown that there is a positive error of about 15% in the clinical diagnosis of paresis. The study of clinical diagnoses before and after examination of the serum and cerebro-spinal fluid goes to prove the same point, *i.e.* that paresis is actually not as frequent as it appears to be from purely clinical observation.

Since Wassermann tests and cerebro-spinal fluid examinations have been commenced, however, the tendency in this institution at least, has been toward more reserve in the diagnosis of paresis, and more care has been exercised in making a differential diagnosis, particularly from cerebral syphilis and arteriosclerosis.

CONCLUSIONS.

Our conclusions may be summarized as follows:

1. Examination of the serum and cerebro-spinal fluid leads to a reduction in the number of cases diagnosed as general paralysis.

2. The cases which have been found most difficult to differentiate from paresis without examination of the serum and cerebro-spinal fluid are cerebral syphilis and arteriosclerosis and Korsakow's psychosis. In regard to cerebral syphilis, however, it must be said that although the findings in the serum and cerebro-spinal fluid are supposed to be sufficiently characteristic to permit a differential diagnosis from paresis, in the individual case they frequently leave one in doubt.

3. In a large insane hospital the routine examination of the serum and cerebro-spinal fluid finds, perhaps, its most immediate value in the rapid confirmation or elimination of the suspicion of paresis in new patients and in revision of the diagnoses of certain patients admitted in pre-Wassermann days.

Thanks are due to the staff for help in collecting the clinical data.

REFERENCES.

[1] The cell counts and globulin reactions in this series have been done by Miss Marion Slater Stone, A.B.
[2] BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxviii, No. 14, April 3, 1913.
[3] The amount of cerebro-spinal fluid used for the Wassermann reaction in these cases was 0.5 cc.
[4] Schoenhals: Monatsschr. f. Psychiatrie u. Neurologie, Vol. xxxiv, No. 43, p. 230, Sept., 1913.
[5] Southard: Journal of Nervous and Mental Diseases, Vol. xxxvii, No. 1, Jan., 1910.
[6] Orton: To be published soon.

TWO CASES OF LUNG ABSCESS CURED BY OPERATION.

BY WYMAN WHITTEMORE, M.D., BOSTON.

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These two cases are reported because in each an abscess of the lung followed immediately after taking ether. One patient had been operated on for a deviated septum and the other had had several teeth extracted. It seems probable that both these cases were due to aspiration of some infective substance.

Both cases are perfectly well at the present time. The first case was operated on a year and three months ago and the second four months ago.

I criticize my technic in the first case at the present time because the operation was done at one sitting. The lung seemed to be adherent to the lower half of the pleura that was exposed in the field of operation, but although I stitched the lung to the pleura before opening into the abscess, yet this patient developed an empyema two weeks after the operation, which I feel was due to leakage of septic material into the pleural cavity. This necessitated a second operation, from which the patient made a speedy recovery.

I think the technic I used in the second case a much safer one. In this case at the first opera-

tion, after exposing the pleura, I placed several gauze sponges against it, and did nothing else except suture the skin and muscle flap back into place. At the second operation, five days later, I found the lung very adherent to the pleura, and after draining the abscess the patient made an uninterrupted convalescence.

Case 1. A married woman of 21, entered Sept. 17, 1912.

F. H. Mother, father, one brother and husband well. Married fifteen months. No children. No miscarriages. No tuberculosis, neoplasm or neuroses. No exposure to tuberculosis.

P. H. Measles, scarlet fever, whooping cough, before five years of age, "nervous prostration" at 18, brought on by over-work and worry; treated for three months with good recovery. Otherwise always well and strong, until November, 1911. No chronic cough. Took cold easily. Cta. at 13. Appetite always good. Bowels constipated. Weight 143.

P. I. Oct. 31, 1911, took ether and had 15 teeth out. Nov. 1, "caught cold." Nov. 2, went to bed with sharp pain, worse on cough in lower left axilla and a dull heavy weight in front of left chest above breast. Coughed night and day, raised thick, dark brown sputum. Was in bed eight weeks, cough gradually lessening and sputum gradually getting lighter in color until it became white and watery, "temperature irregular, 98.6-101, pulse normal, appetite and nutrition good." Cough never entirely ceased but she was up and about and in Jan., 1912, started housekeeping again, and was in fairly good health until March, 1912.

On March 23, 1912, had two hemorrhages within half an hour, raising about 2½ cups of dark red blood.

April 5, 1912, was sent to Sharon Sanitarium with a diagnosis of tuberculosis. In bed for two days after which she was up and about until May 15 when she was discharged against advice.

Patient states that repeated examinations for tubercle bacilli were negative. Within a week from the time of discharge was in bed again with pleurisy, up in two weeks and has remained in fairly good health except that cough had continued. Took cold in August which was followed by return of sputum, cough and pleurisy. Five days before entrance, taken with sudden sharp pain in upper left chest, more severe than pleurisy pain. Felt a gurgling in chest, was frightened, could not breathe for a little while. Similar attack two days later. The amount of cough and sputum has varied greatly but has never been entirely free from cough for eleven months and at times has raised as much as two cupfuls in twenty-four hours. Has slept well except for being disturbed by cough.

P. E. W. D. woman, with clear skin and mucous membranes of good color; pupils circular, equal, and react normally. Superficial lymph nodes negative. Tongue clean. Many teeth gone. No pyorrhea. Throat a little reddened. Heart, dullness from midsternum, 3 cm. to right, 12 cm. to left, 2 cm. outside nipple line. Apex impulse felt in fifth space, inside nipple line. Sounds rapid, regular, with a soft systolic murmur heard along left sternal margin, best at second left interspace. P2 greater than A2 and plus. Pulses equal, good volume and tension. Artery walls not felt. Lung: left, in front there is a space bounded above by the first rib, internally by edge of sternum; below, by fourth rib, and externally by anterior axillary line. There is tympany, coarse gurgling râles, no coin sound, breathing harsh, prolonged expiration but not typically amphoric, cracked pot sound. Nothing abnormal heard in back. There is a small area in the region of the apex of the right lung of relative dulness, slightly increased fremitus and voice. Liver dullness sixth space to costal margin, edge not felt. Spleen not felt. Extremities normal. Knee-jerks present and equal; reports from City Board of Health, state no tubercle bacilli.

Sept. 18, whole right back slightly dull. Left back slightly tympanitic. Breath has a sickish odor, sputum not extremely foul. Tentative diagnosis, "lung abscess" following a foreign body,—an ether inhalation pneumonia or an infarct. Sept. 20, x-ray No. 21,474, a dense shadow occupies the whole of the left middle chest, base and apex clear; right lung negative. Shadow probably due to thickened pleura overlying some pathological process in lung. No foreign body seen. Sept. 22, second plate confirms above.

Sputum examination Sept. 17, slightly foul smelling, muco-purulent, with one blood streak, microscopically many bacteria, mainly cocci of various kinds, none overwhleming in predominance, no tubercle or influenza bacilli seen.

Sept. 20, muco-purulent sputum with two blood streaks, no tubercle or influenza bacilli seen.

Sept. 25, very rare elastic fibre found after boiling sputum with 10% NAOH and centrifugalizing.

Sept. 26, no change in physical condition or in symptoms. Evidence points to the presence of one or more abscesses in left lung at the level of third to fifth rib, probably near the anterior wall, probably pneumonitis about them and thickened pleura. Transferred to the surgical service:

While on the medical service the temperature varied from 98 to 99.2, pulse 90 to 100. Urine normal. Blood, Hgb. 70%; whites 12,200, red 4,264,000.

I operated on Sept. 27, 1912. Intratracheal ether. Patient placed on right side with left arm held high up, giving excellent exposure of left chest. A six-inch curved skin incision in anterior axillary line. Skin and muscle flap turned up. Third and fourth ribs exposed over an area of three inches and resected subperiosteally. Intercostal muscles tied at both ends and excised. Through the upper half of the exposed pleura normal lung was seen moving with respiration, but through the lower half of the exposed pleura, the lung did not move with respiration, was solid to the touch and seemed adherent to the pleura. Fifth rib exposed and resected as the others. Pleura stitched to this solid area of lung tissue. Trochar inserted into this lung tissue, inward and upward, thick blood, only result. Finger inserted along path of trochar and region corresponding to x-ray shadows, explored. A cavity, above and just external to the heart was broken into from which escaped a little foul-smelling pus, mixed with clotted blood. This cavity drained with rubber tube.

Patient made a good recovery from the operation with T. and P. coming down from 101 to normal and remaining normal for nine days during which time she coughed very much less but still raised a little sputum, containing streptococci and pneumococci. The discharge from tube was at first, dark bloody fluid with some muco-purulent material, later becoming entirely muco-purulent. On the tenth and eleventh days following operation T. P. began to go up and during the following week patient

ran a temperature of 101-102 at night, down to nearly normal in the morning. The physical signs on Oct. 17 showed dullness in the left back half way up to scapula. Trochar inserted in eighth interspace, in posterior axillary line, and half a bottle of thick pus evacuated.

Oct. 17, second operation; one and one-half inches of eighth rib resected, subperiosteally pleura opened with escape of a considerable amount of pus. Large rubber tube fastened in.

Patient made an excellent recovery. The discharge gradually lessened so that on November 1, 1912, the tube was left out entirely and on Nov. 4, she was discharged from the hospital.

Dec. 15, patient's doctor reports that she has been gaining strength steadily and has had no pain or cough.

Feb. 10, 1913, patient reports, there is no discharge, both wounds entirely closed, no cough, no expectoration. Has gained twenty pounds since leaving the hospital.

Nov. 17, 1913, patient writes that cough is entirely gone, side is perfectly well and she considers herself cured.

CASE 2. Age 17, single; entered the hospital Aug. 15, 1913. Office-boy.

F. H. Father, mother two brothers and two sisters well.

P. H. Measles as a child. Occasional sore-throat and cold. Appetite good. Habits, no alcohol or tobacco.

P. I. On July 23, 1913, operation on nose under ether for deviated septum. Went home a few hours later.

July 25, began to have headache, frontal region, no nasal discharge.

July 27, pain in chest. Slight cough.

Aug. 1, pain in chest worse, cough and foul sputum. Not working but up and about. Occasionally felt feverish. Cough usually started on lying down. Paroxysms of about five minutes, raising about a drachm or two of yellow sputum. Pain localized under right scapula.

P. E. W. D. N. boy, short loose cough. Skin shows marks of counter-irritation over right chest. Sclera clear, mucous membrane of pale color. Pupils, equal, regular, react normally. No glands felt. Tongue, moderate white coat. Teeth fair. Throat red. Heart, apex in fifth space, 8 cm. to left of median line, just outside nipple line. Shifts 3 cm. in left lateral position in same space. Right border 2.5 cm. to right of midsternal line. Sounds regular, good quality, no murmurs. Pulses, equal, good volume. Lungs: right anterior region at second and third ribs, dull, diminished breathing; slight bronchophony. Right posterior, corresponding region, slight dulness. At the lower angle of the scapula there is dullness and high pitched voice, a few fine and medium moist râles at the base of both lungs. Abdomen: liver dullness fifth space, to costal margin; edge not felt. Spleen and kidneys not felt. No masses, tenderness or spasm. No costo-vertebral tenderness. Extremities negative. Genitals negative.

The next day breath not foul but sputum very foul. Heart slightly displaced to left; right chest fixed, generally tympanitic. Transitory bronchial breathing above right nipple; heart sounds heard well in right axilla. There is probably an area of consolidation surrounding an abscess near root of right lung. Sputum: about 2 c.c., moderately thick, muco-purulent. Not bloody, very foul. Microscopically much pus, occasionally large gram-positive diplococci. A few streptococci in long and short chains. Some bacilli, not characteristic, no tubercle bacilli. X-ray shows dullness at right upper chest as low as fourth rib in front. Lower border of shadow is much more dense than upper border: lung markings cannot be made out in upper part. This may be due to pleural thickening. Diagnosis, abscess of lung.

Aug. 20, the boy does not seem to be absorbing much from his abscess. fairly comfortable except when coughing. Lying on right side is only position which does not induce coughing. The physical signs change rapidly from minute to minute but there is an area of dullness in region of third and fourth ribs in front where at times pure broncho-breathing is heard. T. ranges from 99-101. Urine negative. Blood, hgb. 80%, whites 34,900.

Tranferred to the surgical service:

I operated on August 21, 1913. Intratracheal ether. Patient on left side with right arm elevated. A "V" shaped incision made in right axilla with base up, about five inches across. Skin and muscle flap turned back. Fourth, fifth and sixth ribs exposed and resected subperiosteally for about three inches. Intercostal muscles ligated at both ends and excised. Pleura now exposed. Three gauze sponges laid on it and flap sutured back into position.

Five days later on August 26th, under ether, stitches removed and flap turned back. Gauze removed and pleura found very adherent to lung. On exploring the area corresponding to the shadow in the x-ray, my finger broke into a mass of soft tissue in the upper lobe with the escape of extremely foul odor and a little bloody pus. Tube fastened into cavity.

Patient made a good recovery from the operation.

Aug. 29, discharged considerable foul-smelling pus from tube. Coughs a good deal but raises very little. Temperature 98 to 100.

Sept. 15, cough very much better; does not raise anything; wound draining less.

Sept. 17, tube removed.

Sept. 19, very little discharge from sinus.

Sept. 20, discharged from hospital.

Oct. 15, patient reports in the Out-patient Department, has no cough and does not raise anything. Wound entirely healed. Is troubled slightly with shortness of breath and transferred to the medical department.

Jan. 7, 1914, patient reports that he is feeling perfectly well, except for some shortness of breath.

PROSTATECTOMY WITHOUT IRRIGATION.

BY A. E. ROCKEY, M. D., PORTLAND, OREGON.

More than a year has now passed since I published the composite method of prostatectomy without irrigation[1]. It is five years since I have irrigated the bladder after prostatectomy either in connection with the operation or during the post-operative treatment, except as I shall presently describe. Year by year I am more firmly convinced that irrigation after prostatectomy

[1] North Pacific Surgical Association, Vancouver, B. C., Dec., 1912. Printed in *Surgery, Gynecology and Obstetrics*, April, 1913.

is an error without justification in the physiology of repair.

The first step in the process of wound healing is the formation of a blood clot. The clot has two important primary functions, the arrest of bleeding and the protection of the wound. These are both interfered with by irrigation. A normal blood clot is also more resistant to infection than is diluted blood. When a freshly cut surface is covered with a blood clot the healing process begins at once. Proliferation of the tissue cells readily proceeds under such kindly protection and with such normal food. Remove this by continuous irrigation and what takes place? The exposed cells are rapidly devitalized by the harsh contact with a fluid of lower specific gravity than the cell contents when water is used. By osmosis the cells become swollen, lose their plasm and die. Fortunately their dead bodies afford a measure of protection to the deeper tissues until the misdirected irrigaton has been discontinued. Like all devitalized tissue, however, this layer of dead cells is an easy prey the various saprophytic and pathogenic bacteria, whose toxines make further inroads on the reparative process. When repair is at last established by the formation of a layer of more resistant granulation tissue, its first task is to remove the enfeebled cells by phagocytosis, and cast off the dead layer as a slough. Then and not until then can repair begin in the same manner that would at once take place where the tissues are protected by a blood clot.

The purpose of the operation of prostatectomy is to remove the obstacle to urination with the least possible disturbance from the surgical procedure. Suprapubic enucleation with the finger, as it has been evolved from the methods of Fuller, Freyer and others, has at last come to be considered the method of choice by the majority of surgeons. This operation is essentially one done by the sense of touch. Between the bare index finger of the right hand, which bores into the capsule and conducts the various steps of the enucleation, and the two first fingers of the left hand, protected by the glove and supporting the gland through the rectum, there is such a complete recognition of texture, position, size and line of cleavage as would make an unobstructed view unnecessary. But vision at the bottom of a bloody bladder is obtained only at the expense of long incision, deep retractors and much sponging, and a necessarily prolonged operation. This statement is made only on general knowledge, and on my observation of a number of such operations by other surgeons. Not only is the view thus obtained troublesome, but retractors certainly interfere with enucleation. The common sequence of such operations is packing to control bleeding, or as recently proposed, suture of the margin of the prostatic cavity, and the use of very large drainage tubes, both of which necessarily prolong the convalescence. The sewing in of drainage tubes has recently been revived. This necessitates immediate and constant irrigation to keep the bladder clear of clots, which would otherwise stop up the tube. For years' I have insisted that long incision was not necessary for the reason that in making the enucleation the operator was to be guided entirely by the sense of touch, and that the elasticity of the bladder wall and the usual softness of the larger hypertrophy permitted the delivery of a very large gland through a small incision. An inch and a half incision is therefore all that is necessary in the usual case, and two inches for glands of very large size. While the delivery of the gland may be accomplished with a pair of sponge, tongue, goiter or placental forceps, I have found much satisfaction in the use of the forceps I have devised for this purpose

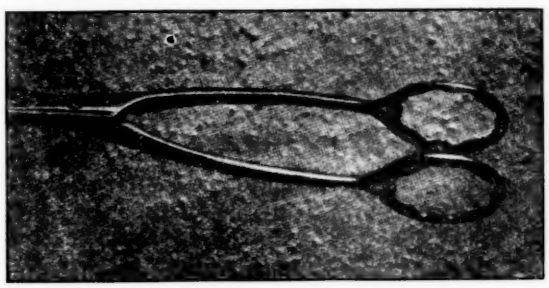


Fig. 1.—Rockey's prostatectomy forceps.

(Figure 1.) The outside of the oval fenestrum is smooth and the inside scalloped, thus ensuring a firm grasp of the enucleated gland without endangering the bladder wall. Bleeding is usually slight, but even if brisk at first, if left alone it usually stops quickly. In the rare exceptions in which bleeding is excessive, we get the advantage of the small incision; the unmolested clot soon gains support from the bladder wall and aids in the arrest of bleeding by pressure.

I have found the valvular suspension suture (Figures 2 and 3) to be of great value in supporting the bladder in an advantageous position for rapid closing, and in preventing the formaton of a pool of urine in the space of Retzius. It is introduced by passing a No. 3 plain catgut with a heavy round full curved needle through the fascia and muscle, and then through the bladder wall parallel to and about three fourths of an inch from the incised margin, which is held by a hemostat, and then back through the muscle

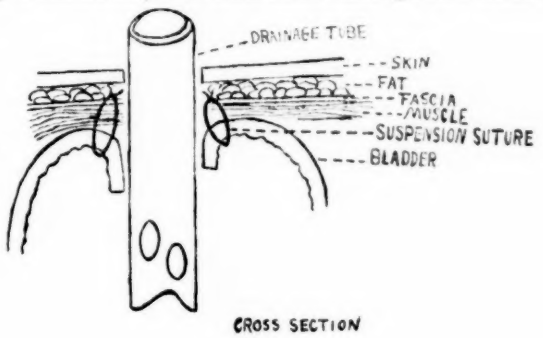
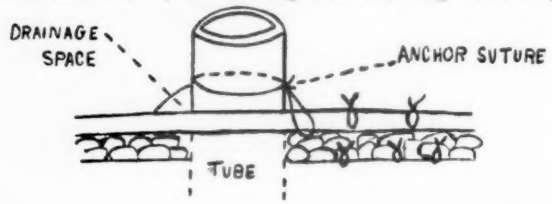


Fig. 2.

and fascia. With a single suture of this kind on each side of the incision the bladder is held in a position of valvular suspension with the edges turned in (Figure 2.) This position of the bladder greatly increases the length of the granulation tissue tract and ensures firmness in the final healing. Two or three chronic cat gut sutures in the fascia, leaving, however, abundant room for a finger size drainage tube, will diminish the danger of hernia. Two silk worm sutures above and one below, anchoring the drainage tube by



VERTICAL SECTION
Fig 3

them, as shown in Figure 3 complete the operation. Care must be taken to leave sufficient room above and below the tube for drainage; a half inch is sufficient. It is through this space that the first drainage comes, as the tube itself is quickly filled with clot. The tube must be short, usually about three inches, so that it will not press on the bottom of the bladder. It should be cut off just above the anchor suture, so that the dressings may lie flat across it.

With the abandonment of irrigation the after care of these cases has been greatly simplified. An absorbent cotton pad covered by a single layer of gauze and held by a light muslin binder, and changed six or eight times in the twenty-four hours, is all that is necessary. The ward nurse is but little troubled with the care of these cases, and special training and experience, required when irrigation is used, is not necessary. The tube should remain in place for eight or ten days. Earlier removal of the tube may disturb the healing at the vesical neck. When the tube is removed I commonly insert a large catheter through the urethra and irrigate the bladder once, and while the water is flowing introduce a large direct vision cystoscope and inspect the base of the bladder and the cavity from which the prostate was removed. By this time it is usually a small cone lined with granulation tissue prepared to bridge the space between the upper end of the prostatic urethra and the vesical mucosa. There is but little tendency to contraction of the orifice in the ordinary case. If, however, the gland was of the hard adherent type without a good line of cleavage, and yet not too firm for finger enucleation, it will be well to pass a sound a few times during this stage of the healing process, and perhaps use an occasional irrigation if detritus be present. These cases are the exception. I should say about one in ten or fifteen of those that come to operation.

When, as frequently happens, the bladder has become infected through previous instrumentation and the urine is bloody and of bad odor, it is not possible by the most energetic irrigation to render the bladder sterile. When such cases come to the surgeon it sometimes happens that false passages have been produced and catheterization is difficult. Under these circumstances we make no effort to catheterize, and fill the bladder with water for the incision. If the condition of the patient is not favorable for enucleation local anesthesia is used, the bladder drained by a stab wound and tube, and the patient left to recuperate for operation later. When the condition of the patient is fair, the operation may be completed at once through a bladder containing this foul urine, then left without irrigating a single time, and the result will be better than with the most virgorous irrigation. With irrigation these cases commonly form large sloughs in the prostatic cavity and in the space of Retzius. Without irrigation the blood clot protects the tissues from infection, and the sloughs do not form.

We may well ask what becomes of the blood clot if it is not washed out. A portion of it may serve for the nourishment of the new granulation tissue. The remainder, after it has served it purpose as a protective and hemostat is dissolved by the urine. This dissolution keeps the urine blood-stained for a few days. It then clears up, the tube is open, the clots and bad odor are gone, and convalescence is established. The absence of irrigation apparatus permits the patient to be out of bed in a wheel chair on the second or third day, enjoying the rest and comfort that such freedom affords.

After a few days in the wheeled chair, we dress patients in painters' overalls of rather a large size, the bib making a good support for the pad of cotton which absorbs the escaping urine. This permits them to walk about the wards even while wearing the tube. The general well-being of the patient is improved by this absence of restraint. The final results are exceedingly satisfactory. The valvular suspension often closes the bladder immediately upon removal of the drainage tube, and voluntary urination in from twelve to sixteen days is not uncommon.

A NEW OPERATION FOR HIP CONTRACTURES IN POLIOMYELITIS.

BY ROBERT SOUTTER, M.D., F.A.C.S., BOSTON,

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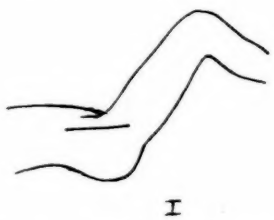
IN poliomyelitis the usual contractures of the soft tissues at the hip hold the thigh flexed and abducted and involve a shortening of more or less all the soft tissues on the outer and anterior aspect of the region of the hip. The deformity may be slight, considerable or extreme. It is

usually accompanied by a compensatory lumbar lordosis which on account of the flexibility of the spine here makes complete correction more difficult.

Contractures of the soft tissues at the hip due to the shortening or lack of growth of the soft tissues following paralysis or injuries are sometimes easily overcome by manipulation and stretching. When they are of long standing they may not yield to tenotomies of the tendons and of the tensor fascia femoris, and myotomies are necessary. The severe contractures that need myotomies require some surgical experience on account of the vascularity and the amount of muscle tissue that must be cut before the hip will come down.

Often so many of the muscles on the anterior aspect of the thigh must be cut that finally the surgeon finds himself down on the hip joint. There are a good many difficulties and sometimes a great deal of hemorrhage, and the operation may seem very unsatisfactory, and is

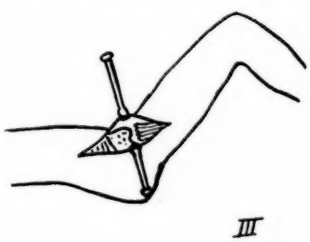


Longitudinal incision two to three inches posterior to the anterior superior spine.

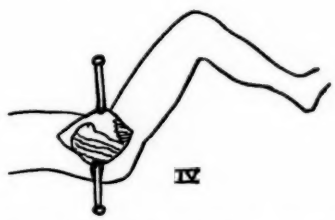
often imperfectly done. For these difficult cases and also some of the milder ones the following operation has been devised: First, a longitudinal incision is made three inches long, parallel with the long axis of the body, with its

Subcutaneous tissues retracted, fascia lata exposed; the line between the retractors marks the incision transversing the fascia fibers.

middle two inches posterior to the anterior superior spine. (Fig. 1.) It is carried down to the fascia. By retracting the subcutaneous tissue the fascia is exposed from the anterior superior spine back to the trochanter. (Fig. II.) Second, the fascia is incised at right angles to the skin incision, cutting all its fibres transversely from the anterior superior spine back to the great trochanter. Third, the skin incision is next retracted in such a way as to expose the anterior superior spine. (Fig. III.) By means of an osteotome, the attached muscles and fascia are removed from the anterior superior spine subperiosteally on the inside, on the outside and



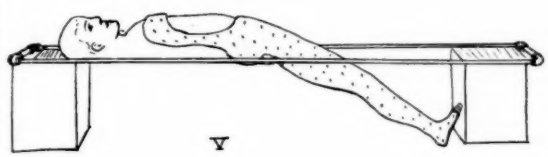
The anterior superior spine exposed. Attachment of muscles and fascia have been subperiosteally removed with an osteotome.



Tissues formerly attached to the anterior superior spine have been pushed downward.

below; they are all pushed downward. (Fig. IV.) The hip is hyperextended backwards, pulling the tissues down with it. If the tension is great the soft tissues are pushed down by means of gauze or blunt dissector, clearing off the periosteum and soft tissues from that part of the pelvis below the anterior superior spine.

Following the operation a plaster of Paris bandage is applied to the whole leg (Fig. V.)



Post-operative plaster of Paris anteriorly from the nipple downward, posteriorly from the waist downward. Window in the plaster over the abdomen. Bradford frame raised on boxes to allow hyperextended position of the hip.

(contractures of the knee and ankle may be corrected first). The hip is hyperextended in order to correct the lumbar lordosis usually present in these cases. It is also adducted slightly to stretch the lateral contractures. The plaster of Paris extends from the nipple line in front and from the lower waist behind to the toes of the foot operated upon. A window may be cut in the plaster over the abdomen. The patient is put on a Bradford frame elevated to allow the legs to drop to a lower level than the hips and shoulders. The advantages of this method of procedure are as follows: There is practically no bleeding, the operation does not require much surgical skill and the contracture is definitely relieved. The muscles are not cut across; their periosteal attachment is simply moved one and one-half or two inches downward. The anterior superior spine will be found to be practically moved downward.

Clinical Department.

THE TREPHINE OPERATION IN GLAUCOMA*.

BY MYLES STANDISH, M. D., BOSTON.

Williams Professor of Ophthalmology, Harvard Medical School, etc.

THE unsatisfactory results of iridectomy in chronic cases of glaucoma have been acknowledged by all operators.

I wish to define chronic glaucoma, for the purposes of this paper, as those cases in which there is a continued, slowly increasing tension with steadily diminishing vision and field.

The progress of the disease can be stayed to a certain extent by the use of myotics, but as a rule, they lose their efficacy in the end, and the disease goes on to blindness.

When iridectomy was practically the only operation done for chronic glaucoma it was usually found that the vision diminished immediately after the operation and rarely returned to the condition just previous to the operation, and the ultimate result of many of these cases was that the progress of the disease was not stopped. This unsatisfactory state of affairs has led a number of operators in the last ten years, to devise operations by one means or another, to establish a corneal fistula at the sclero-corneal margin by which the aqueous would drain out beneath the conjunctiva, and thence be absorbed. Some of these operations have been deemed by their advocates, and by others to introduce into the case new dangers, and also to be, in some instances, difficult operations to perform. Several gentlemen, of whom Dr. Elliot of the East Indian Medical Service is the most prominent, have advocated the use of the corneal trephine to remove a disc at the sclero-corneal margin. As this method seems easier and safer than the other methods proposed, I have done nine operations following the method of Dr. Elliot with the exception that in all but two instances which will be noted, I have done a complete iridectomy through the opening made by the trephine, and am glad to accede to the request of the chairman of the committee on papers and present you with a brief resumé of these cases.

CASE 1. A woman, a Syrian, 48 years of age. first seen by me May 28, 1913.

The left eye had an attack of acute glaucoma three years before, but as far as I could determine there had been practically no local treatment, simply morphia for the pain.

At the time of this visit the right eye had good vision with normal disc.

In the left eye she had a tension of + 2, pupil 5 mm. in diameter, typical pathological depression of the disc, and great pain, which had been increasing for several weeks. Two per cent. pilocarpine only reduced the pupil to a diameter of 4½ mm. The tension was very doubtfully diminished, and the pain continued. There was no vision.

Operated on by me June 10 with Elliot's trephine. Good operative result, but after recovery she still complained of some pain and the tension was a little above normal. Pilocarpine controlled the pain.

The patient was seen by me September 13. There was some complaint of conjunctival irritation, but no pain. Over the trephine opening there existed a very large, translucent bleb, which had a base of 7 or 8 mm. in diameter, and an elevation of at least 5 mm. with conjunctival congestion in this neighborhood. Tension had not increased since June. She was using no myotic and had no severe pain. The result was a success in that otherwise we should have been obliged to have removed the eye on account of the unbearable pain.

[Later. The eye was subsequently enucleated for pain and increase of tension.]

CASE 2. Mrs. F., 48 years of age, first seen by me June 30, 1901.

There was slight increase of tension, marked depression in the disc in each eye, but not so much that one would feel sure it was pathological.

The field of the left eye was lost almost to the fixation point down and in. V.O.S. was 20/CC. Vision in the right eye was .7‡2. She was given pilocarpine and when next seen by me in September, vision in the left eye had risen to 20/C-1, and in the right eye it was .8-4. There was no shallowing of the anterior chamber, no history of rainbow halos. Tension was very doubtfully increased. Field in the right eye was slightly diminished in all directions. A collyrium of pilocarpine was prescribed and she was seen by me from time to time.

In March, 1903, vision in the right eye had risen to .9-3. The tension was normal under the myotic. The vision remained the same without lessening of the field or vision under continued use of pilocarpine, till May 6, 1908, when I found by my note that the entire nerve in the right eye was somewhat depressed, although the vessels did not cut under in any place. The vision was .9-5. May 3, 1909, the tension was slightly increased in each eye. Vision in the right eye had fallen to .7, and the field was more contracted than on previous occasions. The pilocarpine solution was increased in strength and the tension became normal, but the vision in the right eye did not again rise above .7. March 7, 1911, vision in the right eye still remained at .7. The field also never recovered its former size, though not markedly diminished.

In the left eye there was some congestion suggestive of chronic irido-cyclitis. Vision in the left eye by June 16, 1910, was diminished to 1/CC eccentrically.

In June, 1911, the field in the right eye had again diminished in size, but vision remained the same. The appearance of the disc was slightly more pathological in character.

In October, 1912, vision in the right eye had fallen to .5, the field had diminished, especially upward and inward, and I advised operation. The patient returned in February, 1913, and by focal light there was slight haziness of the cornea.

The trephine operation was done by me May 22, 1913. The removal of the disc left a small layer of sclera in the bottom of the trephine opening cover-

* Read before the New England Ophthalmological Society, Dec. 9, 1913.

ing the lower third. The iris was coaxed through the opening and a generous iridectomy done. There was considerable hemorrhage. Recovery was without incident. The bleb over the trephine opening was distinctly visible, though not nearly the size of the one previously described. Tension was normal.

September 13, 1913, tension was still normal and vision was 20/XL. The patient comfortable.

CASE 3. Mr. Y., 54 years of age, first seen by me November 9, 1905.

Fifteen years before he had a von Grafe operation on the left eye for cataract, and three years before vision in the left eye had begun to fail. Previously he could read fairly well.

In March, 1904, he had had a secondary operation on that eye but without benefit. When I first saw him tension was + 1 —, he saw colored rings at times, especially blue and green. The ophthalmoscope showed a white nerve with deep depression of the temporal two-thirds of the disc. There was loss of field to the inner side. Vision in the right eye was 4/CC with a partially opaque lens and no tension.

I advised preliminary iridectomy and extraction in the right eye. The extraction was done under cocaine November 19, 1905, without incident. Subsequent vision in the right eye was 20/XL. A secondary operation was done December 6, 1907. There was no ophthalmoscope abnormality of the disc.

In March, 1908, he had a hemorrhage into the vitreous of that eye which left a floating membrane. There was increase of tension afterwards and vision in the right eye fell to 7/XL. Two per cent. pilocarpine kept the tension normal and vision remained the same till January, 1910, when pilocarpine failed to control the increase of tension and one-fifth per cent. eserine was added to the solution. He had a stronger solution of eserine which he used when rings around the lights returned, that stopped the phenomenon. Vision remained approximately the same until December, 1911, when there was distinct loss of vision and contraction of the field on the nasal side.

In June, 1912, there was some steaminess of the cornea of the right eye. He was given one-half per cent. eserine to use habitually, but vision and field continued to fail and haziness of the cornea to increase. In April, 1913, after the use of eserine twice, the tonometer gave a tension of 45 mm. Hg., and I advised trephine operation.

The operation was done April 24, 1913. There was a good-sized bleb over the trephine opening after recovery. Tension was normal. By May 21, steaminess of the cornea and the little stippling of the surface had entirely disappeared and the eye was comfortable.

In September vision, which before operation had diminished to perception of light had increased to 2/C. There was no pain, tension was normal and he was using no myotic.

CASE 4. Miss R., age 59 years, first seen by me May 13, 1910.

Fifteen years before she had first symptoms of glaucoma in the right eye, *i.e.*, rainbow halos, etc. Nine years later iridectomy was done. At the time of this visit, vision in the right eye was .7 and the patient said it had remained practically the same since the operation.

Six years before she first noticed rainbow halos in the left eye, and some irritation after long use. Vision in the left eye was .7 —. She was using a myotic and was very much opposed to another operation.

Ophthalmoscope showed depression of the disc in the left eye, well marked, though not typically pathological. Anterior chamber shallow, field approximately normal. She continued under my care and with the use of a myotic, examination from time to time showed little appreciable change.

In October, 1910, the patient stated that without the use of the myotic the eye got hard. Halos were seldom seen.

September 12, 1912, vision in the left eye was .7 and the patient reported that a sleepless night, or any physical or mental disturbance would make the pupil in that eye unusually wide and that on this occasion it still remained wide open with the myotic. It was wide and one-fifth per cent. eserine was added to the pilocarpine solution. She returned three days later with small pupil. Vision, however, in September, 1912, had fallen to .5 and the field was contracted to the inner side, the tension slightly raised. It was found necessary to increase the strength of the eserine to control the situation.

In June, 1913, the patient returned after having been absent from the city during the winter. Vision in the left eye had fallen to .4 + 1. Pupil was 3 mm. in diameter, anterior chamber very shallow and there was a number of adhesions of the iris to the lens capsule. No history that the eye had been red during the interval.

I advised trephine operation and the patient consented, although she had previously determined never to have an operation on the second eye.

The operation was done June 12, 1913. The iris was so tied down that an iridectomy could not be done through the trephine opening, but a large button-hole was obtained.

November 11, the field had returned to approximately normal size. Vision was .4. No pain. Patient said the eye reddened somewhat from continued use. She was using no myotic. Tension was normal.

CASE 5. Mrs. L., 59 years of age, first seen by me September 2, 1913.

Vision had been distinctly failing for three months. Vision in each eye barely perception of light. No pain, headache or halos. Pupil not dilated, anterior somewhat shallow. Ophthalmoscope showed a large pathological depression of each disc. O. D. tension + 1 and O. S. + 1—.

The trephine operation was advised. This was done September 3d on the left eye and the 10th on the right eye.

A fair iridectomy was obtained through the trephine opening in each case and there was good drainage through the opening in each eye.

After recovery from the operation the patient returned to another city and subsequent history of the case is limited to a letter stating that the patient three months after operation could see large objects.

CASE 6. Miss L., age 73, first seen by me December 7, 1912.

First had slight discomfort and pain in right eye eight years before, and at the end of a year vision in this eye had considerably diminished until at this time there was no perception of light. This had been about the same for five or six years.

Vision in the left eye had been diminishing for

three or four years, more rapidly the past six months. There had been considerable pain, but no halos. The anterior chamber was shallow, the pupil in the left eye 3½ mm., although she was using a myopic. Tension +1 and field lost to point of fixation inward and downward. Vision 20/XXX-2. There was a deep pathological depression in each optic disc. The patient's mother lost vision in one eye wholly. Mother's brother and sister were blind from glaucoma. The maternal grandfather had very poor vision. Except in the case of the uncle and aunt, the patient did not know the cause of the loss of vision.

The pupil contracted under a myotic, the slight congestion disappeared and the tension diminished. Advised operation.

On September 10, 1913, did a trephine operation under holocaine with large button-hole iridectomy through the trephine opening. There was good drainage after the operation.

CASE 7. Mr. A., an Armenian, age 55 years.

First seen by me May 21, 1913. For thirteen months vision in the left eye had been failing, said to have followed some accident. He had an iridectomy, but the vision continued to fall. At the time of the visit, vision in each eye was falling and tension in each eye was +1. 32 mm.: Hg. O. S. and 35 mm.: Hg. O. D. Patient counted fingers at six feet with each eye.

Advised operation. Patient went away and did not return till November, 1913, and then vision was reduced to perception of motion at three feet. There was a shallow anterior chamber, pupils dilated, and the field showed that in each eye it was reduced to a small rounded area extending from the point of fixation about 25° horizontally outward, much less vertically in the right eye, and in the left eye the field of vision covered only about 10° and was similarly placed to that of the right eye.

On November 18th, a trephine operation was done on the left eye, and on November 25th, on the right eye.

The operation on the left eye was done near the margin of the previous iridectomy, but I did not succeed in increasing the iridectomy. Upon recovery there were distinct blebs over each trephine opening. On January 4, 1914, vision in the right eye was 7/CC. Tension was normal.

Any ophthalmologist who has followed these cases will recognize them as those which present the most unfavorable aspect for operative benefit, and the majority of them with the old method of iridectomy would probably go on to permanent and total loss of vision.

These operations I have done according to the method prescribed by Dr. Elliot in which a rather large flap of conjunctiva is dissected up to the margin of the cornea, thence the dissection is more carefully made so that the epithelial surface and perhaps the anterior layers of the cornea are elevated and the flap is then turned back over the cornea, the trephine blade is placed so that about half of its diameter overlaps the dark crescent of the cornea, the other half being over the opaque sclera.

The trephine button is removed as thoroughly as may be, although Dr. Elliot himself feels satisfied if the corneal half of the opening is left patent. The iris is then seized through the opening and a portion of it removed. In most of my cases I have done a complete iridectomy. The conjunctiva is replaced and sutured.

I have found the operation in my hands easy and safe. In none of these cases did I find it necessary to use a cutting instrument to dissect up my flap from the cornea, and I did not carry the cut in the conjunctiva absolutely to the sclero-corneal margin, but I left a space of one or two mm. on each side. I have found the horizontal handle which comes with the Elliot trephine to be a distinct aid in determining the direction in which the cutting instrument is acting, as the slightest tipping of the trephine is perceptible owing to the turning of the flat horizontal handle between the fingers of the other hand. The movable stop on the blade which comes with the Elliot instrument for the purpose of guarding against too deep incision I have found to increase the difficulties of the operation by obscuring the seat of operation. However, it is of considerable comfort to the novice in this operation.

I believe we have in this method a new and valuable procedure and that its use will probably be more and more extended to other varieties of glaucoma as our confidence increases. Whether constant leakage of the fluid will tend in time to impair the physiological functions of the eye only time can determine, but as far as we can see at the present time, the trephine opening effectually prevents any subsequent pathological increase of the intraocular tension.

A SIMPLIFICATION OF THE TECHNIC OF REPOSITION OF THE RETROVERTED UTERUS.

BY JOHN T. WILLIAMS, M.D., BOSTON,

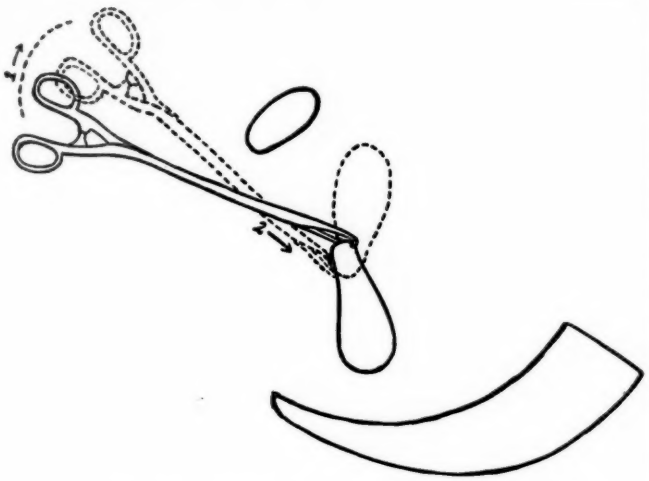
Third Assistant Visiting Surgeon for Diseases of Women, Boston City Hospital; Assistant to the Surgeons, Gynecological Department, Boston Dispensary.

THE technic usually described for the reposition of the retroverted uterus is as follows:

Grasp the cervix with volsellum forceps and draw down the uterus. With the finger in the posterior cul-de-sac, raise the fundus until it can be grasped by the fingers of the other hand on the outside of the abdomen. Then push the cervix back into the hollow of the sacrum.

This process is often very painful, and necessitates a certain amount of trauma. It has been my experience that only the first and last of these steps are necessary.

The method which I have used is as follows: Grasp the cervix with volsellum forceps, raise the handle as shown in the diagram (1), and push the cervix back into the hollow of the sacrum (2).



As the cervix is thus carried backward, if there are no adhesions, the fundus rotates forward into normal axis, upon the supravaginal attachments of the cervix as a pivot.

This procedure is more rapid and less painful than the older one and equally as effective. I have yet to succeed with the more complicated method when I have been unable to replace the uterus by the simplified procedure.

Where the uterus can be only partly raised toward normal position, not infrequently if a pessary be inserted, the uterus will be found in normal position at the end of forty-eight hours. This is contrary to the usual gynecological teaching that a pessary should never be inserted except with the uterus in normal position, but if intelligently used, the pessary can do no harm and often accomplishes what manipulation has failed to do. This use of the pessary has also been mentioned by Kelly (Medical Gynecology, New York, 1908, p. 308).

Medical Progress.

FIFTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.

By Robert B. Osgood, F.A.C.S.; Robert Soutter, F.A.C.S.; Hermann Bucholz, M.D.; Harry C. Low, M.D.; Murray S. Danforth, M.D.

TUBERCULOSIS.

Tubby,[1] writing in a broad general way concerning surgical tuberculosis in children and its rational method of treatment, contrasts the results obtained from the comparatively short stay of the children with bone, joint, gland, and skin tuberculosis in the city hospitals and the results obtained from their prolonged stay in the country hospitals. With the better air, the more generous sunlight, etc., the comparison leads to only one conclusion, that the treatment in the cities is not nearly as economical a method as the country method. He suggests registration and climatic treatment for all cases of surgical tuberculosis in children, outlining a broad administrative scheme and reckoning the financial needs and the approximate number of cases (one child in five thousand.) France with its large hospitals at Berck and Brevannes has shown the value of this method, and Tubby believes that the conditions in England and America demand the establishment of such hospitals in these countries also.

There has been, and will continue to be, much discussion concerning the rôle which trauma plays in the development of bone and joint tuberculosis. The study by Wilson and Rosenberger[2] therefore is of much value. They have attempted to collect the textbook and experimental evidence corroborated by cases and reach the conclusion that this evidence suggests that trauma plays an important part as a secondary cause of bone tuberculosis. There seems to be little evidence to indicate that trauma actually predisposes to bone tuberculosis in a healthy joint, but that in a joint in which there already exists disease trauma increases its activity very constantly.

Packard[3] points out the fact that the prevailing treatment of Pott's disease of the spine in jackets and braces is often unsatisfactory, and that the occasional cures without deformity are negatived by the larger number of cases which after years of disease show considerable deformity. He believes that the recumbent treatment in fresh air offers far greater advantages, and that the forces of gravity in ambulatory cases are dangerous and difficult to neutralize. The operative treatment he considers still "sub judice."

Green[4] reports ten cases of tuberculous osteomyelitis of the digits, the so-called spina ventosa. He apparently relies upon the clinical history and the x-rays for his diagnosis, and upon hygiene, local fixation, and x-rays for their treatment.

(Ed. Note: The Von Pirquet, luetin, and Wassermann reactions would doubtless help in clearing up the accurate diagnosis in this somewhat peculiar type of lesion, for the pathology of the so-called tuberculous osteomyelitis needs thorough study. It is probable that many of the cases represent mixed infections or are possibly caused by mildly pyogenic organisms in pure culture. Drainage of the bone when abscess presents has in our hands apparently been conservative of joint motion and tended toward recovery.)

De Quervain[5] believes that secondary infection is much less to be feared in tuberculous affection of the lymph nodes, tendon sheaths, muscles, or subcutaneous tissues, than in the bones and joints, and although he considers that in the former type of cases operative interference is likely to do less harm than in the latter. It is usually unnecessary when either

radio or heliotherapy can be employed. He states that 4-6 exposures to the x-rays, one every three or four weeks, each dose either a whole or a half a sabourand dose and filtered through an aluminum screen 1 mm. thick is frequently sufficient to effect a cure. He thinks that if the lesion is more than 4 cm. below the surface of the skin one can hope for little from the x-rays.

Tuberculin. We are seeing fewer favorable reports of the use of tuberculin in surgical tuberculosis. This may be because of the rather more positive results which some of the newer methods of treatment, such as heliotherapy, seem to obtain, but is also accounted for in some measure by the necessity for very careful administration which success in its use has seemed to demand.

Fenwick[6] believes strongly in its value in all surgical tuberculosis cases except those grave infections with a highly oscillating temperature. In the out-patient clinic he has administered dilutions in normal salt solution by mouth, each fluid ounce containing 1-1000, 1-100, or 1-10 mg. of tuberculin with ½% phenol. His initial dose is 1 drachm of the weakest solution or 1-8000 of a mg. and the next week he doubles the dose if there is no rise of temperature. He rarely gives above 1-100 mg. at a dose. He reports no bad results and a usual noticeable improvement in appetite, general condition, and local joint symptoms.

Cashman[7] has attempted to accurately determine the correct dosage of tuberculin. He believes that the benefit to be derived is due to the reaction of the body, not to the tolerance, and he thinks the best dose is one that produces the greatest local and focal reaction without constitutional symptoms. By using dilutions of Koch's O. T., he determines what solution is necessary to produce a skin reaction 4 mm. in diameter. This dosage used as a tuberculin injection should produce a swelling 2-5 cm. in diameter. He thus judges the proper dose for the individual case. Of 30 cases, 13 are reported well, 11 improved, and 6 doubtful.

Heliotherapy. Professor Estor[8] has described the technique of heliotherapy. The patients may with benefit rest in bed several days before beginning the treatment. As soon as the patient is acclimated the treatment may begin. At Leysin patients are placed in open galleries without glass, because the glass cuts off the violet and ultra violet rays. The sides of the terrace are shut in to protect the patient from draughts. At Arachion the sick lie flat in boats anchored near the shores or well out in the water. The head is protected with a straw hat and the eyes with smoked or colored glasses. When the temperature rises to 40° or 50° Centigrade, a light gauze is placed over the exposed parts to protect them from burns. At Leysin and on the borders of the Mediterranean all the rays of the spectrum are allowed to reach the exposed skin. On the other hand, Finsen is obliged to concentrate the northern light by means of lenses. When this is necessary it is important to eliminate the caloric rays by means of instruments constructed for the purpose. The sun bath at first should be very short. The first few days Dr. Rollier at Leysin limits the bath to five minutes, three times a day. After this the time is gradually increased so that at the end of a week it may last one or one and a half hours. At first the bath is local, only the affected part being exposed. Gradually more surface is exposed until the whole body receives the rays of the sun. Rollier considers this absolutely necessary in order to get the best benefits from the bath. This complete bath is given only after several weeks of treatment. When the patient is accustomed to the bath it is given four times a day for a period of three, four, or five hours as the time permits. Some cases are greatly benefited by five and seven hour exposures. The joints are fixed as the condition requires, and during the bath the apparatus modified to allow the greatest possible exposure. Often during the early treatment inflammatory symptoms are increased, probably by the caloric rays. This is, however, temporary. If the exposure is too prolonged there may be sun stroke and other general symptoms. The author lays stress on the fact that heliotherapy is a most valuable accessory treatment to the other well known methods.

Witek[9] reports four cases of surgical tuberculosis treated by heliotherapy with an ideal functional and anatomical result, and Alkan[10] has demonstrated that even in the city by placing the children on the roofs or high balconies much may be accomplished by the direct sunlight treatment.

D'Oelsnitz[11] also believes that we must place heliotherapy in the first rank of anti-tubercular measures, but mentions certain untoward effects which have been occasionally observed. For example, that there may be local aggravation of symptoms, usually temporary, but occasionally persisting, and accompanied by loss of weight. In lung cases and in visceral cases hemorrhages sometimes occur, and excessive heliotherapy has been followed by meningeal symptoms. Certain observers, as Vulpius,[12] consider the technique as still incompletely worked out, and are unconvinced that altitude is as important a matter as has been believed. It is remarkable, however, that there seems to be such a consensus of opinion as to the value of the method. Light therapy as well as fresh air and good food therapy would seem to have its individual permanent importance. Since natural sunlight cannot constantly be had and altitude and long days are not within the reach of all, many attempts have been made and are still being made, to artificially produce light rays exactly similar to the beneficial rays of the sun.

Hagemann[13] believes he has produced light

which may fairly be called artificial sunlight, and is superior to the ordinary artificial lights, such as those derived from the Friesen-Beyer, the mercury vapor, and the quartz lamps, which according to Rollier give only a local and an inefficient radiation. Hagemann's device is a quartz lamp surrounded by a corona of simple electric lights. He reports 52 cases treated by this method, with an unusual and satisfactory gain in weight, appetite, longer hours of sleep, and a disappearance of pain.

A very comprehensive volume dealing with the technique of application and the effects produced by the various medical quartz lamps has been written by Meuser,[14] bringing up to date this method of therapy, which is apparently winning many converts, especially in Europe.

ARTHRITIS.

More positive evidence of the infectious nature of rheumatism is furnished by the work of Beattie and Yates,[15] who seem to have been more fortunate than most investigators in establishing a causal relation between the streptococci which they isolate from knee joints and tonsils in rheumatic patients and the arthritis. They have isolated an organism in 129 cases and have inoculated 41 animals. In 9 cases where a definite arthritis existed they have produced a pure arthritis in rabbits in 8. In certain cases where there was no rheumatic history and in certain tonsillar cases the isolated organism produced a septicaemia in nearly every case, sometimes accompanied by an arthritis. The discovery of the organism in the blood is always difficult, but in 3 of 11 rheumatic cases they have succeeded in isolating an organism which produced a pure arthritis in rabbits. They believe that the focus of infection is in the throat or alimentary tract.

Gudzent[16] has examined the blood of 100 patients with "chronic articular rheumatism" with special reference to the number of lymphocytes. Normally the lymphocytes comprise about 20-25% of the white corpuscles, but in these cases the percentage was noticeably increased, being normal in only nine patients, 25-30% in 19, 30-40% in 42, 40-50% in 24, and over 50% in 8. The mononuclear and eosinophilic forms showed no change from the normal percentages and the number of red blood corpuscles and the amount of haemoglobin was normal. Gudzent offers no explanation, but calls attention to the fact that frequently a decrease in the number of lymphocytes has been observed in tuberculosis.

Bornstein and Plate[17] have noticed that a chronic arthritis not infrequently occurs in persons obliged to work under compressed air. They believe that this occupational disease may to some extent be guarded against by gradually accustoming the subject to the usual conditions of life and by insisting upon the slow passage from rooms where compressed air is breathed to the ordinary air.

Lipoma and Synovial Fringes of the Knee. Lefevre and Dubourg,[18] after a review of some seventy-seven articles reporting cases of hypertrophy of the synovial fringes of the knee, consider the main points of diagnosis to be the following. (a). The long duration of the affection and the remarkable contrast between the relative freedom of movement and the changes in the shape of the joint; (b) the contrast between the frequency and intensity of the pains when the knee is used and their rapid subsidence during repose; (c) the integrity of the bone and cartilage forming the joint and the peculiar palpation findings. In short, the first thing when one considers the possibility of lipoma is to appreciate the contrast between the appearance and palpation findings and the practically unimpaired functioning of the joint. They think that conservative measures are futile, and advise partial or total synovectomy, leaving the bones and cartilages intact. As a rule, the patients recover without impairment of function as soon as the excrescences have been removed from the synovial membrane. The authors believe that the three affections, arborescent lipomata, villous polyarthritis, and "Hoffa's disease" are merely three forms of a single lesion which may be termed chronic, polypiform, fibroadipose synovitis.

(Ed. Note: We agree that the large solitary lipomata which give rise to symptoms and the chronic fibrous villi, which are frequently pinched and give sensations of catching, should be removed by operation. Formerly we believed that most cases of villous arthritis should be operated upon, but a thorough trial of the more conservative measures of diet, strapping with adhesive plaster protection of the anterior capsule by apparatus, and the various thermo- and hydrothrerapeutic measures, has demonstrated the fact that many of these cases apparently entirely recover without operation. We believe, therefore, that except in those conditions mentioned above, conservative measures should be given a fair trial before the synovectomies advised by these authors are undertaken. We have seen impaired joints and recurrence of symptoms after these radical operations.)

Lasserre[19] reports that the treatment of gonorrhoeal arthritus with anti-meningococcus serum has been very successful in France. It seems peculiarly effectual in the subacute form with a tendency to septicaemia and in the acute types with a tendency to ankylosis. The chronic forms rebellious to other measures have in his experience been favorably modified by it. Lasserre states that four or five injections in 0.2 or 0.3 mg. every four or five days are generally sufficient.

Wolf[20] has been impressed with the beneficial effect of early massage in even the acute gonorrhoeal joints. He believes that careful and in-

telligent massage may be begun about two weeks after the beginning of the disease and its effect is to relieve rather than increase the acute sensitiveness. He gives the credit for this procedure to Bauer of Bergmann's clinic, who considered this treatment safe because of the fact that gonococci in the tissues are very short lived and the chances of causing other infectious processes are very remote.

Handley and Ball[21] claim priority (Jan., 1913) for an operation on hypertrophic or osteoarthritic hip joints which they call "cheilotomy." This operation consists in removing the overgrowth of bone about the acetabulum and restoring free motion in rotation and abduction. Their two cases were in men aged 56 and 62, and they state that they were of traumatic origin. They used a posterior incision and chiselled off all of the "lip" but do not carefully describe this difficult procedure. The results were good four months later.

(Ed. Note: We mention this report because this is an operation which has been done in America in specially selected cases for many years. In the purely traumatic and seemingly quiescent hypertrophic arthritic cases after a trial of complete fixation, it has been useful in gaining more motion and relieving pain, but it should be borne in mind that in many of these cases the limitation of motion and the pain are not caused by the overgrowth of true bone evident in the x-ray, but by the osteoid tissue and general joint sensitiveness which may disappear under fixation. We have been able to relieve by plaster or leather spicas, certainly for years, several of these cases in which the x-ray showed a definite overgrowth, and in which the limitation of motion was marked. The freer motion has persisted after the removal of the fixation unless the underlying disease became active again or trauma again entered in. The operation in the elderly is not without shock, and to reach all the overgrowths may in unskilled hands easily result in greater crippling than the disease. These overgrowths about the hip joints are seen very frequently and we do not believe that this operation should in any sense be considered a routine procedure. It is fair to say that the authors themselves do not advise it in active cases or where other joints are involved.)

POLIOMYELITIS.

An unusually severe epidemic of poliomyelitis in the Parish of Morehouse, in Southern California, has been reported by Patterson[22] in the *New Orleans Medical Journal*. There were 60 cases in six months, and there was a 25% mortality, most of the cases being very acute.

Fraser[23] has examined the cerebro spinal fluid in 126 cases of acute poliomyelitis with the purpose of determining the value of the examination as an aid to early diagnosis and as an indication of the severity of the disease and its probable course. He finds the fluid usually clear, colorless, and under little pressure. In most of the early cases there was some increase in the mononuclear cells, chiefly of the lymphocytic variety. He concludes that while the examination may be of value in the preparalytic and abortive cases for purposes of diagnosis, it has no value as a prognostic sign.

Rosenau[24] discusses the report of the work of the Massachusetts State Board of Health, which seems to indicate that the stable fly is the principal agent in the transmission of the disease. Sawyer and Herman[25] were able to transmit the disease from monkey to monkey in seven cases by means of the stable fly. They, however, doubt that this is the usual mode of transmission and maintain that every precaution against contact infection should be taken.

Allison[26] writing concerning the results obtained by the implantation of silk tendons, after much experimental work on dogs and clinical experience in human beings, reaches the conclusion that in the severer forms of poliomyelitis in children this is a valuable method and that the results are better than in operations where there is removal of bone.

Bartow and Plummer[27] also report excellent results from their later observations of the use of intra-articular silk ligaments in paralytic joints of poliomyelitis. These operations have been devised by them as well as performed, and they report 50 cases without any infection or any tendency for the Lange paraffined silk to cut out or act unfavorably as a foreign body. They consider that the developmental stage of the operation has been passed and that it should be more generally adopted.

(Ed. Note: The editors have observed a comparatively small number of cases treated by these intraarticular silk ligaments. These cases have been distinctly improved and the silk has remained in and performed its function.)

SPASTIC PARAPLEGIA.

Gaugele and Gumbel[28] have published a volume on Little's Disease, the main object of which is to answer the question as to whether Foerster's operation has fulfilled its expectations. They do not think it has. They base their conclusions on the examination of many children at the Home for Crippled Children in Zwickau, some of whom have had Foerster's operation performed upon them and some of whom have been treated by the simpler orthopaedic methods. They think the condition of the latter class compares favorably with the condition of the cases in which division of the posterior nerve roots has been done.

Biesalski[29] also discusses the theories of the causation and methods of treatment of spastic paralysis, and while reporting excellent results from Foerster's operation and the nerve resections of Stoffel, he considers that the thorough and correct application of exercise treatment

and muscle training is the most valuable method of treatment. *(To be continued.)*

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING HELD AT WASHINGTON, D.C., MAY 6, 7, 8, 1913.

(Concluded from page 359.)

DR. E. FLETCHER INGALS, Chicago, read an article entitled,

WHAT RELATION, IF ANY, HAVE THE TONSILS TO PULMONARY TUBERCULOSIS?*

During the last fifteen years many articles have appeared in medical journals on the relations of the tonsils to pulmonary tuberculosis. At the early part of this period, it was frequently claimed that the tonsils were a common portal of infection for the pulmonary disease, but subsequent research demonstrated that the tubercle bacilli might penetrate the tonsils and pass through them to the lymphatic cervical glands, causing tuberculosis of the latter, without any involvement of the faucial tonsils. It was shown, however, that there was no connection between the cervical glands and the pulmonary lymphatics. In a small percentage of cases the tonsils appear to be primarily involved in cases of pulmonary tuberculosis, but usually tubercular changes in these glands are secondary and the bacilli appear to have been absorbed from the sputum. It has been shown that the tonsils are the portal of entrance for the tubercle bacilli in many cases of tubercular cervical adenitis, yet inflammation of the cervical glands, non-tubercular in character, appears to be much more frequently due to absorption of infection through the tonsils. The consensus of opinion now is that pulmonary tuberculosis is generally a systemic infection of aerogenous origin, and that when the tubercle bacilli are taken up by the lymphatics they are poured into the general circulation. In pulmonary tuberculosis the bronchial glands may be primarily involved, but this does not appear to be the usual course of the disease. In a recent statement one of the best known pathologists says that he does not think there is any relation between diseases of the tonsils and pulmonary tuberculosis.

DR. W. E. CASSELBERRY, Chicago: The accessory nasal sinuses are such exceedingly complex structures and so intricate of access that one or more small sinuses may escape our attention; even knowing where they may be involved we find our access at fault. Rhinologists have been preaching a nasal origin for asthma and the nasal cure for asthma, and it has never been accepted by the medical profession for the reason that its explanation was not lucid. That these swellings in the antrum which we used to say were congestions, are secondary to nasal accessory sinus suppuration, which in turn occasions the asthma through toxemia by absorption of pus.

* This article appears in full in the *Journal of the Amer. Med. Asso.*, July 12, 1913.

DR. BROWNING, Los Angeles: I recall one case where a patient had been operated on for chronic appendicitis and afterwards the asthma was much relieved. I have had two cases within the past three years of tuberculous glands, one in a child and the other in an adult, who were treated for the tuberculous condition by the administration of tuberculin, and the asthmatic condition has disappeared and so far has not returned.

DR. R. H. BABCOCK, Chicago: We cannot expect patients to be cured if the surgeon merely removed the polypi. One case I recall was a woman who had a local polypus in the nose. The mere removal of nasal polypi is not sufficient, and the reason why this procedure has been followed by only partial or temporary relief lies in the failure of the operator to recognize or remove the hyperplastic ethmoid responsible for the polypi. The effect, we all know, of whiskey on asthma. I think all the facts point to asthma as a phenomenon of anaphylaxis, and I think this view is going to lead to the cure of many cases since asthma has been a distinct reproach to the medical profession.

DR. THOMAS W. HASTINGS, of New York, presented a paper on,

THE RECIPROCAL RELATIONS OF THE CLINIC AND LABORATORY IN MEDICINE.

The author considered the indebtedness of the modern medical clinic to the medical sciences; most clinicians in the rank and file of practitioners deny that there are diseases in which laboratory knowledge counts for everything and that experience of thirty years develops not so much proficiency along certain lines on the first as the modern first grade medical school imparts to its latest graduates.

DR. HASTINGS took up the evolution of epidemiology, the discovery of "carriers"; the indifference to autopsies of most physicians; the complacency with which most diagnoses are made; the advancement of laboratory trained men to clinical positions. Professors in medical colleges should be men who know considerably more of the subject they teach than the clinically trained men in medical schools can ever hope to know on account of the little time the active clinical man can give to keeping pace with any medical science.

DR. E. K. BALDWIN, of Saranac Lake, read a paper on,

THE FRUITS OF LABORATORY WORK IN RELATION TO CLINICAL TUBERCULOSIS.

Much that has been learned empirically about the treatment has simply been confirmed by the laboratory, but it has given us more delicate indications, more definite means of control. Foolish or injurious therapy has been discarded in consequence of tests made in the laboratory. Theories have been born and have died in the laboratory. Too many bedside ideas have been born of criminal ignorance that tuberculosis is a deep-seated infection, that cannot be reached by medicaments as harmful to the tissues as to the bacillus. The public has been led to expect that all the ills of human flesh can be cured by some serum evolved out of a laboratory. Let us do our best to give them a saner view than this without discrediting the real good that comes from it.

DISCUSSION.

DR. CASSELBERRY: I must say it never occurred to me that the laboratory needed any defense. I think its justification can be summed up in two words, antitoxin and Wassermann.

DR. A. K. STONE, Boston: There is no laboratory procedure that cannot be called in question. Even the almost indisputable bacillus of tuberculosis may be disputed, for there are other acid-fast bacilli that come in at times. Nothing gives a man more pleasure than to have enough laboratory knowledge to be able to check up laboratory findings for himself; and even if he cannot go ahead and make new examinations and discoveries, he can have lots of fun in the laboratory.

DR. MINOR: It is an impossibility in these days for a man to be a laboratory man and a clinical worker in a very large practice. The demands of the laboratory upon his time are insistent and have to be met; the demands of the patient are insistent and have to be met, and the two cannot to any great extent be combined. My complaint is that, for reasons that cannot be easily explained, there is a distinct arrogance in the attitude of the modern laboratory man toward the clinical worker. He has done great things; it was the result of the laboratory work that gave us diphtheria antitoxin, and a great many things, and I would not belittle it for a moment; but I cannot admit their claim to the exalted position that they would arrogate to themselves. They must come second to the clinician. We all admit that the plain clinical worker has done in the past and can still do excellent work for sick people without the laboratory, while the laboratory man is perfectly unable to do anything without the clinician. Now my contention is that he thinks he is not secondary, but primary. It was for that reason that I asked a typical laboratory worker like Dr. Baldwin, who combines the clinical and laboratory methods in a happy way, to prepare this paper. I feel in the long run that a balance will be restored. The final effort in medicine is therapeutical, and medicine which does not result in therapeutics is useless, and the world would reject medicine tomorrow unless these resulted in the good of the patient.

DR. POTTENGER: The reason why a clinician, as a rule, cannot do efficient laboratory work is because these two lines of work are adapted to an entirely different type of mind. The clinician is essentially an optimist, and he should be. He sees the needs of his patients and furnishes them. The laboratory man is slow, patient, and ultra-critical in his work. I believe it is absolutely impossible for a clinician working hard all day to sit down and patiently work out a laboratory problem. I have observed that most men who undertake both clinical and laboratory work as a rule neglect one or the other.

The laboratory man is apt to believe that his work is exact. It is not. We clinicians know that our clinical work is not exact. He also is not exact; there is just as much error in the laboratory as there is in the clinic. Now if we learn this fact, if we learn that the laboratory is our greatest helpmate, if we use it right, and learn that it is not as exact as we have been thinking, then, and not till then, will the laboratory and the clinical man be on their proper basis.

DR. KINGHORN: Dr. Pottenger said that the two could not work together, that is to say, a man cannot work in the laboratory and in clinical medicine. Now the physician that I recognize today as being the first physician in the land for what he has done both clinically and in the laboratory, belongs to this society, Dr. Trudeau. As you know, he is a great clinician. There is no one, I think, who can equal him in his clinical knowledge of tuberculosis. No one also can question the rank that he has attained as a laboratory worker in tuberculosis. In other words, he has combined in himself a great clinician and a great laboratory worker. I can also refer to his first assistant, the vice dean of our school up in Saranac Lake, whom I have often thought of as the Elisha, and who is the writer of this paper; and Dr. Baldwin certainly has combined those two qualities. He is a clinician of world-wide renown, and he is also a laboratory worker of world-wide renown, so that I think it shows that these two qualities can be combined in one man. Now, of my observation of the trend of medicine in late years, it is that the physician has combined clinical study with laboratory study. For instance, the Rockefeller Institute was started primarily for investigation. What have they done? They have their Institute right alongside their hospital, so that the two can be combined right there. The whole trend of medicine today, I think, is to combine the two. Dr. Minor has said that a man with a large practice cannot do both. I say that in order to meet that condition, do not let a man have such a large practice. There are other men that are coming along that need the help, and let them share the practice. I am sure, because I have combined laboratory work with clinical work; and I know that you get great principles of treatment from the laboratory that you would not get by reading, and that you will only get them by the laboratory, and I say the whole trend of medicine today is to combine clinical and laboratory study.

DR. POTTENGER: I still maintain that these are the exceptions, and not the rule. I think we all recognize that Drs. Trudeau, Baldwin and Kinghorn are exceptions in their work, but that does not prove that it can be done generally. I could not do it.

DR. BALDWIN: You all agree with me that the well-rounded man has to know something about laboratory work, although he cannot do very much. As for Saranac Lake, this mutual admiration society which Dr. Kinghorn has started up leaves me no answer. In regard to the man who is doing so much practice that he cannot keep up with the laboratory work, I think Dr. Kinghorn's contention is correct. No man should feel himself so desirable to his patients that he cannot take help. He can turn his patients over to somebody else, and the only way that you can comprehend the field of medicine,—and I may say the field of tuberculosis today,—is to have plenty of help, and I mean by that, help in the practice of medicine; and if you are going to keep up even with the new things that are coming up all the time, a man has to be well-read. Then another thing, a little laboratory experience makes a man more self-critical. I do not say it makes him any better practitioner; I think sometimes it interferes with his being a good practitioner, simply because he does not give his patients so much hocus-pocus,—so much talk! But after all, the patients get more confidence if they live long enough with him. A man who is doing both ought to be theoretically better rounded. I have had plenty of experience in both ways, and I realize

my deficiencies in the laboratory work, and I also realize the tremendous advantage that it has given me, and I speak of it modestly because I realize so many mistakes that I have made in clinical work, too. Do not expect such accuracy in the laboratory that you need to consider that as the final word.

Dr. James M. Anders, Philadelphia, read a paper on,

THE RÔLE OF PHYSICAL EXERCISE IN THE OPEN AIR IN THE PROPHYLAXIS OF TUBERCULOSIS.

There is a disposition on the part of physicians to overlook the importance of muscular exercise in the prophylactic treatment of pulmonary tuberculosis, since the general acceptance of the principle of rest in the treatment of all cases of this disease in which fever is present. The object of this paper is not to attempt to underrate the great value of rest in the active stages of this disease, but rather to emphasize the first-rate importance of the systematic muscular exercise as a means of minimizing the number of susceptible persons.

The American race, as a whole, is undergoing muscular deterioration. On the other hand, the endurance or resistance of an individual is in direct relation to his muscular development. Muscular development was considered in relation to climate. The prevention of tuberculosis involves something more than physical exercise, but the commanding position of this measure is undoubted. The effect of systematic physical exercise, combined with deep breathing, upon the vital power and resistance of the lung texture was considered. Competitive athletics is not to be encouraged among the young. Increased respiratory exchange in muscular activity increases the nutrition and general health of the body. The details connected with the question of the regulation of muscular exercise must vary with the individual.

Dr. A. K. Stone, Boston: In the schools there has been a marked change for the better in the matter of fresh air. In Boston there is a general rule that between each lesson period the windows shall be opened while the class does gymnastic and breathing exercises and also again at recess and before the sessions. This rule is at present much modified by many ancient and thin-blooded teachers. At present in Boston we are preaching the open-air school room gospel by an illustrated lecture at the moving picture houses, thus reaching many thousands of mothers and children. The department stores are making provision for rest and exercise as well as for the proper feeding of employees,—all under the most favorable conditions of fresh air.

DISCUSSION.

Dr. E. O. Otis, Boston: In the stress and strain of life it is often difficult to persuade men to take time for physical exercise out of doors. The two classes of people who need it most are the students in school and college and the older men who are retiring from more active duties. Physical exercise should be followed by rest, and not taken when exhausted, but when a certain amount of vigor remains. If men cannot take time for outdoor exercise, carefully supervised and directed physical exercise of the gymnasium will accomplish excellent results. Where you have a limited time, the degree of efficiency by which the various exercises can be applied by a successful director in the gymnasium would accomplish a very great deal.

Dr. W. H. Swan: I was very glad to see the distinction drawn between the value of physical exercise, and the overtrained college athlete. I have seen a considerable number of men who in college had been on football teams and boat crews and had afterwards broken down with tuberculosis, and I have the distinct impression that they do badly. I am sure I have not seen one man who was on the college team, and was thoroughly trained, as I believe they are trained, who has afterwards done well when he had tuberculosis. In line with Dr. Otis' statement regarding rest after exercise, I think that is extremely important, and also the question of not exercising when the person is mentally fatigued. I believe that our tank of energy is all one and if we drain it by mental fatigue and nervous fatigue we have not any left for physical exercise. I think that if the person is very tired mentally he will get no good, but harm out of it.

Dr. C. H. Miner: We must also consider the value of rest and exercise in children. In trying to build up children of tuberculous parents in a dispensary where we take tubercular parents, we have the nurses bring all the children to the dispensary for examination. The children from 5 to 14 years of age are usually in perpetual motion when they are not asleep, and it is difficult to secure any improvement in them. The preliminary part of the treatment is physical rest; that is the most difficult part of the treatment to secure. Then, in later life, when the young adults and youths should be having physical exercise, they are in school and not taking necessary exercise that would develop their chest and keep them in good physical condition. We must not urge physical exercise on young children.

Dr. Alton: I want to make one brief comment on the matter of pulmonary exercise or pulmonary athletics. Lung expansion is an exceedingly important thing to consider in those cases that we call pre-tubercular, with no evidence but the diminished vitality of the patient to lead us to fear something to come. There is a large class of men, usually from 20 to 35, in stores as clerks. These men have a low resistance power. We take their chest measure and find a difference of perhaps only an inch and a half between expiration and inspiration. They do not know how to expand their lungs. There is one simple method that I have not infrequently advised in cases where I feared that the slight pulmonary expansion might lead to trouble later on, that is pulmonary gymnastics as an evening exercise. The patient starts out before going to bed, walks half a block, then stands and fills his lungs as full as possible, walks a little further, and then the air is expired. This is repeated several times. These are the cases we cannot send into the mountains to walk up hill to get the same result, but they can get it at home, late in the evening after they have rested from the fatigue of the day, and just before going to bed. I think if any one would follow this method in a given number of cases he would be surprised at the beneficial result.

Dr. Jay Perkins, Providence: I appreciate what Dr. Miner and Dr. Swan have said in regard to the rest of children from tuberculous parents, and those who are fatigued with mental work, and I agree fully with them. I think that in our fresh-air schools one of the advantages we have is the exercise that is given these children, and I believe in

all of our schools there should be a period of intermission and exercise. Part of the benefit is because the children are mentally fatigued. It does give their minds a rest; they can work better afterwards; they can do far better mental work after exercise, as I myself have experienced many times; and I think the most of us have felt better when we have taken a 15 or 20 minutes brisk walk after a hard afternoon in the office.

DR. ANDERS: As to what Dr. Otis has said with reference to the difficulties in carrying out physical exercise among the clerks, and business men as a class. On the other hand, it is possible to give them such direction as they can and will follow, and secure a fair amount of muscular exercise. My own method is to request such patients to walk to their work; if it be too far, then a portion of the distance only. I often tell them to leave the trolley car or other conveyance when within ten blocks or a mile of their offices, and to walk to their destinations very briskly; likewise again at the noon hour. Mornings and nights they must be taught to practice calisthenics for five minutes, and if carried on systematically, this proves most useful. Of course exercise must be alternated with rest. That this work should and eventually must begin among the children in our public schools is undoubted. As compared with the amount of attention given to mental training, surely that bestowed upon physical training is far, far, too little. We want, if possible, to create public sentiment in favor of more and better graded physical education; less pushing of the mind at the expense of the sinews and muscles.

DR. WM. CHARLES WHITE, Pittsburgh, read a paper on,

THE INFLUENCE OF HEAVY SMOKE ON ACUTE AND CHRONIC LUNG INFECTIONS.

Smoke as a problem of cities' health has its main influence upon the respiratory passages. As types of acute and chronic lung infections, on which smoke may have a varying influence, pneumonia and tuberculosis have been chosen. These diseases have been studied from a statistical standpoint for various cities scattered throughout the United States, and comparisons made with the city of Pittsburgh, which probably has the greatest number of smoky days in the year.

In considering the influence of smoke on acute and chronic fatal lung infections, the question of age of distribution, age of city, poverty on the basis of congestion; and topography of the city have been taken into account. The latter feature in such a city as Pittsburgh, with high hills and river valleys, allows a partial segregation of the city into areas of varying smoke density. In other cities, such as Indianapolis, the flat contour does not allow such divisions.

The chief tendency of the study seems to indicate that smoke has rather a severe influence on pneumonia, with a much less influence on tuberculosis.

DR. POTTENGER: Several years ago when traveling through Europe, a layman asked me the question, why it was that the coal miners in Westphalia did not have tuberculosis, and he said that it was true that there was very little of it.

According to Dr. White's chart, Los Angeles has a high death-rate and very little smoke, but everybody knows that the death-rate is high from the fact that a large per cent. of our tuberculosis patients die within the first year because they come into Los Angeles to die.

DR. CASSELBERRY: So many things contribute to the causation of tuberculosis, the density of population, housing and working conditions, sunshine, winds, and dust aside from the carbon of smoke, that it does not seem likely that a chart based alone on carbon contamination can be reliable. We ascribe some of the bad results of the associated gases and other vitiating substances, such as carburetted hydrogen and sulphuretted hydrogen.

DR. BROWNING: It would seem to me that in the open tuberculosis resorts, some effort should be made to segregate the persons who die in these resorts into those who have recently become residents and those who have been a longer resident. I think this would not be very difficult with reference to Los Angeles. What Dr. Pottenger has said may seem as a joke, but it is a fact. Not only about what he said about half of the patients dying within the first year of residence, but about one-fourth during the first month, so you see that the climatic condition of Los Angeles with reference to any local condition, has no effect upon that class of cases. I take the same to be true of any other open resort. It would be very little effort, I think, for the state board of health or the city health authorities to segregate them.

DR. LINSLY WILLIAMS: As to the death-rate from tuberculosis in the different cities, it always seemed to me quite necessary that the cities, if possible, should afford a corrected death-rate, but I do not see quite how they can figure it out if cases are reported as tuberculous, and then are lost track of by removal; and it is difficult to trace them. It may be that one of the reasons why the death-rate is diminished in the cities is because the patients are leaving the cities.

DR. ANDERS: I was much surprised to learn that the influence of smoke on the incidence of pneumonia was greater than on that of tuberculosis. It is quite possible that Dr. White's explanation of this discrepancy is entirely correct. I think it is almost an invariable rule that a person suffering from advanced anthracosis, coming from the coal regions of Pennsylvania to our hospitals in Philadelphia, finally develops pulmonary tuberculosis, which is apt to pursue the usual course of this disease. It is possible that the implantation and the progress of the disease may be retarded in the manner explained by Dr. White. Dr. White chose wisely when he selected pneumonia and pulmonary tuberculosis as types of diseases for comparison, and I think we must allow that his tentative conclusions have more than ordinary value in view of the fact that he has taken into account a great many interfering conditions, *e.g.* the topography, the local congestion of the population, etc. He said nothing about dust in his remarks. Not wishing to criticize his paper, I still think that this and other associated impurities might have been considered in this connection. Truly Pittsburgh, owing to its peculiar topography and the fact that it is the smoky city of our country, is a very fertile and appropriate field for investigating this subject, and I certainly trust that Dr. White will continue his work in this line because it will require observation over a long period of years to give us reliable results.

DR. HINSDALE: I have always understood that one of the deleterious influences of smoke was the fact that it contained so much sulphuric acid; and there are many interesting calculations about the

number of tons of sulphuric acid which are deposited each day in a large city like London from the various furnaces and fire-places in that city, so that the carbon particles being associated with free sulphuric acid, and being inhaled into the lungs is a very bad combination, of course. It would take a long time to convince me that carbon particles, even free from sulphuric acid, if such were the case, would not do the lungs any harm, or would not incite, probably, the infection of tuberculosis.

DR. DELANCEY ROCHESTER, of Buffalo, read a paper on,

THE TWO MOST IMPORTANT FACTORS IN THE PREVENTION OF TUBERCULOSIS.

The detection and destruction of tuberculous cattle will, of course, eliminate the extension of the bovine form of tuberculosis to the human race and the passage and enforcement of laws to this effect should be persistently urged. In this way one of the two great factors in prevention will be made effective. The compulsory segregation of patients in advanced stages of pulmonary tuberculosis was urged. Every case should be investigated, and if unwilling or unable to properly care for himself at home, he should be committed to a sanatorium, for incipient or advanced cases, to stay there until cured or dead. Cremation was urged in case of all deaths from tuberculosis. Instruction in regard to destruction of sputum and feces, in regard to precaution as to personal contact with others and in regard to disinfection of apartments lately occupied by the tuberculous are all of value in checking the spread of the disease; but the author believes strongly in compulsory reports of cases and compulsory removal of suitable patients to their proper sanatoriums.

DR. MINER: The criminal and ignorant poor are absolutely unable to handle in any way their own cases. The advanced tuberculous patients with bad habits are a great source of spread of the disease. It is hopeless to expect these criminal and ignorant poor to be benefited by the ordinary treatment. They will go home and repeat the same errors, and they will serve as sources of infection. I think we have just as much right to segregate them under police control as in smallpox and other contagious diseases. This is important, and until those patients are treated in that way a large part of our efforts toward eradication of tuberculosis is entirely wasted.

DR. OTIS: I want to ask if I am not correct that the human tubercle bacillus will live only at a temperature of 37° C.?

DR. W. L. DUNN: I had an interesting experience recently that I think will perhaps be worth while relating even if it is out of order. Some years ago I had occasion to set aside some cultures. The culture was implanted in March, 1907. Four weeks ago I found that culture, and I thought I would simply see whether it was still alive or not, and that culture grows with facility; it is one of the most rapidly growing cultures.

DR. BALDWIN: I think these statements will only illustrate, as was said here previously, that laboratory results are sometimes fallacious. It has been proved that these earthworm bacilli are not true tubercle bacilli. It is known that they are saprophytic bacilli that grow at cold-blooded temperature and the earthworms are not of any danger to the human being. The turtle bacillus is exactly the same kind.

DR. ROCHESTER: Dr. Otis asked why I said that the bodies of people who died with tuberculosis should be cremated. I feel that all bodies should be cremated any way, but that is another question. The reason I said this in regard to tuberculosis is that tubercle bacilli have been demonstrated in the bodies of earthworms, and it is possible that we may have a spreading of tuberculosis through plants, through lettuce or some other food which may be eaten. It is a mere possibility, but it is a possibility to consider. I thoroughly believe in cremation. There is one other view on which I wish to very decidedly express myself, in regard to the detention ward. I am very glad to hear that they have already established a detention ward in Cincinnati. We are about to try it in Buffalo. I have in mind just one case which illustrates the seriousness of letting patients out to go home to die. I treated a man in advanced tuberculosis some years ago, who finally went home to die. He had a wife and five children. Four of these children and the wife have since died of tuberculosis. He went home to die and they died too.

DR. CLEAVELAND FLOYD, of Boston, read a paper on,

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF CHRONIC INFECTIONS OF THE PLEURA AND LUNGS.

The author has treated during the past four years a fairly large number of cases of pulmonary tuberculosis by nitrogen compression. Some of these have been under treatment primarily for one or more symptoms, such as cough or hemoptysis; but in the majority the object was to arrest an advanced active process. In the larger number reduction in temperature, relief of cough, diminution of expectoration and increase in body weight have occurred. Improvement in circulation, gain in weight and increase in strength followed even where the extent of pneumothorax was limited. In cases of mixed pulmonary infection results have been fairly good only where collapse of the lung has been extensive. The compression of a portion of the lung tends merely to diminish the amount of sputum and reduce temperature. The action of pyogenic organisms is not checked and lung destruction slowly advances. In unilateral cases of active tuberculosis, not only relief of symptoms but arrest of the disease has been obtained. Occasionally it has been possible to arrest the disease in one half of the chest and later, after allowing this lung to re-expand, to compress the second, which has shown evidence of activity. Such cases are reported by German observers. Dr. Floyd exhibited the apparatus used for making the nitrogen injections and described the technic.

DR. HARRY LEE BARNES AND DR. FRANK TAYLOR FULTON of Rhode Island read a report of

SEVENTEEN CASES OF PULMONARY TUBERCULOSIS TREATED BY ARTIFICIAL PNEUMOTHORAX.

(See the JOURNAL, June 19, 1913.)

DISCUSSION.

DR. E. O. OTIS: Boston. I have had occasion to observe this operation recently in Europe. There is a diversity of opinion in regard to what the pleural shock really is. Many authorities attribute it to gas embolism. This is a great danger, and to minimize this danger Prof. Deneke of St. George's Hospital, Hamburg, has devised an apparatus which is

the best for the purpose of all those I saw in Europe. Prof. Deneke's idea is that greater safety is insured in the first injection by using oxygen gas, which is more readily absorbed and is less likely to produce gas embolism should the needle enter a vessel. By simply turning a stopcock he turns to the nitrogen apparatus and injects nitrogen. At my suggestion one of the instrument makers in Boston has imported this apparatus. In every instance the operators in Europe insist upon a very careful x-ray. The Forlanini method was generally adopted, and only in one clinic I saw the open operation used.

DR. W. H. SWAN: Is there any advantage in the nitrogen gas as compared with air, other than it being absorbed less readily, and how much less readily is it absorbed?

DR. W. A. GRIFFIN, Sharon: We have had a series of cases, about as large a number as Dr. Barnes has reported, and we feel every confidence that the majority have been much benefited by the treatment and in perhaps two or three instances we feel that the patients have been brought back from a very perilous position. The most striking case was not, strictly speaking, advanced. The patient had slight signs of tuberculosis of the left lung, with a constant temperature, and it was because of this constant temperature that pneumothorax was finally induced. I think it is important to determine the indication for renewed injections in any case under treatment. What guides have we to go by? The cough is a very decided indication; if it commences to increase that is time to consider another injection; if the amount of sputum commences to increase that is another sign, and if the needle upon being introduced shows a marked negative pressure, that is, perhaps, the most sure and definite sign.

DR. JAMES ALEXANDER MILLER, New York: The experience which I have had in 25 cases convinces me that the percentage of far advanced cases in which you can get very marked results is limited certainly to not more than 10%; but we have had very good results in cases not advanced, but where they had hemorrhages, that frequently being the first symptom, and I have treated since such cases with remarkable success. In three of them they had been bleeding from a pint to a quart a day, and with rising temperature, with no evidence of ceasing of hemorrhage. After the injection of gas the hemorrhage stopped and prompt reduction of fever resulted. We have in such cases as that an indication for prompt pneumothorax treatment. Whether it should be continued or not after the hemorrhage is controlled should be decided for each individual case. In these chronic, advanced cases you get hung up and you are afraid to stop and really feel that it is not justifiable to keep on. We expect to use it in more acute cases with hemorrhage, and also the acute febrile cases with limited lesions.

DR. MILLER related a case in which the nitrogen was given after careful local anesthesia with novocaine up to 900 c.c. at the first injection; there was a minus 1 pressure, with absolutely no discomfort in the patient, when suddenly, just as he was withdrawing the needle the patient turned pale, the pupils dilated, the patient broke into a profuse perspiration and his heart action became weak, but he did not lose consciousness. The interesting thing about it is that this happened just at the end of about 15 minutes' injection of 900 c.c. of gas, and the pulse, instead of getting rapid and irregular, became slower and slower until it reached a minimum of 48, showing probably a reflex vagus action. There is a possibility of producing a small lesion either in another portion of the lung or in the opposite lung a focal tuberculin reaction, as Brauer and Spengler have reported.

DR. BALDWIN: Knowing that the depth of Drs. Floyd and Robinson's needle was sometimes a little hard to gauge, I had a special needle made to gauge the depth of insertion. One may not need it, but in re-fillings I have been obliged to work without any assistant, and I think that in using one hand on the needle and resting this on the chest, prevents the needle from going too deep, and in the primary operation it may serve a purpose in maintaining the needle at the right depth, not allowing it to come out before the nitrogen has begun to flow in. It is also an advantage not to allow the needle to pull back.

DR. POTTENGER: This operation is one particularly for the hopeless cases of tuberculosis. There is the difficulty,—in knowing when a patient is hopeless. When the heart is able to do its work well and he is able to assimilate his food, there are some chances of recovery. I have been observing it in Brauer's Clinic in Europe, but have not done any of it. What is its actual value in arresting the disease, and also about what is the percentage of cases in which difficulty in performing it is found? I am intensely interested.

DR. C. L. MINER: I have performed this operation on some 20 odd patients. I feel that it is chiefly of value to us in cases otherwise hopeless, in which the chance of recovery is small. In this type of case, in which the mortality would be nearly 100%, I have saved 3 cases out of 21. They were otherwise certainly doomed. One danger is the danger of waking up the other lung. You cannot expect it to be perfectly healthy. My own rule would be that if there were anything wrong with more than one-third of the other lung you could not go ahead. I had a case of advanced cavity in one lung, with high fever. I gave her injections. The effects were phenomenal; the temperature dropped to normal, the pulse to normal, Her appetite increased and she felt like a new woman. Fortunately, at the end of three weeks, after the most remarkable improvement, the other lung waked up and I had to take out the gas, and in two months she was dead. I think it is extremely important to use the radiograph in these cases. It will enormously handicap your efforts to be without it.

Now, as regards cases to which I have done harm. I have hastened the death of one patient, though not in a case that could have recovered. It seems to me that it is a wonderful thing if it saves one case out of 100.

DR. J. E. ELLIOTT, Toronto: Dr. Floyd has become enthusiastic over some of the good results that he has seen. He said that some early cases recovered because of the injection. I wonder whether they would not have recovered without it. I would like to ask the question, where the fluid forms after a pneumothorax has been performed in a dry case does it show the characteristics of an exudate or of a transudate; is it inflammatory in its character or purely hydropic? May I ask where pneumothorax has resulted in the rupture of the lung, breaking through into a pus cavity, what pressure has been used in these cases? Has it occurred only in those cases where a high pressure has been used?

DR. FLOYD: In regard to Dr. Otis' statement that the Germans believe that pleural shock is due to embolus, I would say that no gas had been injected into this man, only the needle was introduced; therefore there was no chance of an embolus. Nitrogen was used in preference to air because it is less readily absorbed; probably it stays in the chest two-thirds longer than ordinary air. I agree with Dr. Miner in regard to the value of the x-ray in indicating when it is time to continue with the injections; but I also believe that when you find negative pressure you have waited too long instead of not long enough. I believe 50 or 60% of unilateral cases may be arrested by nitrogen. Dr. Elliott asks why I state that early cases were arrested by this process. The early cases that I have treated, arrest was brought about in a very few weeks, once or twice in two weeks. That is a much more rapid loss of moisture than can be obtained by other methods. As to effusions being inflammatory or transudates, I would say they are probably transudates.

DR. LAWRASON BROWN of Saranac Lake, New York, read a paper entitled,

WHEN IS A TUBERCULOUS PATIENT CURED?

Dr. Brown reviewed early definitions of cured phthisis and stated his conception of the word "cure" as meaning a restoration of the body to a state in which no vestige whatsoever of that disease exists within the body, although in certain instances some scarring is left behind. That a well-defined cavity can ever fully heal without leaving at least a fistulous cicatrix, is highly improbable, but it is entirely possible that in such patients with long "ultra-chronic" disease, the tubercle bacilli may finally disappear. We hear of "apparent" cures, "relative," "economic," "practical," "working" cures, and so on. Those who use these terms confess their doubts. On the other hand are those who "for the good of the cause" (the eradication of tuberculosis) still believe that the general public needs pap and not strong meat, honied words and not real truth. They advance expediency to uphold their position and fear the loss of funds for sanatoriums. Dr. Brown referred to Dr. V. Y. Bowditch, who through long experience saw the light when many of us were still in darkness and for years never used the term "cure" and now uses it only under protest. Dr. Brown believes that pulmonary tuberculosis is curable; that spontaneous healing of tuberculous infection occurs frequently; that healing of clinical tuberculosis may, but rarely does, occur; that permanent arrest is the most frequent termination of the disease in those who are later able to follow their usual occupations; that temporary arrest, of longer or shorter duration, occurs in all except the acute cases and that continuously progressive disease follows only upon several temporary arrests.

DR. C. C. BROWNING read a paper on,

A YEAR'S OBSERVATION OF SYMPTOMS IN CASES OF ADVANCED TUBERCULOSIS IN THE LOS ANGELES COUNTY HOSPITAL IN CONNECTION WITH WEATHER CONDITIONS.

The author had previously reported to the society the apparent influence on temperature and hemorrhage in tuberculous patients with reference to certain meteorological phenomena. Unseasonable or very sudden changes in temperature appeared to influence temperature in patients, while equal or greater changes occurring slowly did not. In the present report the patients were all in the advanced stages; 61 cases were charted and these embraced 21,968 patient-day observations. The charts covered the months August to March inclusive. Another chart showed the relation of temperature, humidity and rainfall to the number of deaths from tuberculosis in 1910. On a rising barometer with falling humidity with wind west of north and a clearing day the patients were pleased or jovial and optimistic; with reverse conditions they were pessimistic, cross, very irritable and some of them unreasonable in their demands. With the so-called "Northers" there is discomfort and increased nervous tension. This was noticed also in the lower animals.

DR. JOHN M. SWAN, of Rochester, N. Y., read a paper giving the details of the differential leucocyte counts in eight cases in which tuberculin injections were made for diagnostic purposes, in order to determine, if possible, the influence of tuberculin on the eosinophile leucocytes.

Case 1. Eosinophile before the injection of tuberculin, 2.3%, 3.2%; after the injection of 5 milligrams of tuberculin, 7.8%. Tuberculin test positive.

Case 2. Eosinophiles before the injection of tuberculin, 0.4%, 0.2%; after the injection of 3 milligrams of tuberculin the eosinophiles disappeared from the peripheral blood and remained absent until the patient died. Reaction negative.

Case 3. Eosinophiles before the injection of tuberculin, 5.6%, 5.0% (Ascaris lumbricoides infection); after the injection of 5 milligrams of tuberculin, 10.8%. Reaction positive.

Case 4. Eosinophiles before the injection of tuberculin, 5.2%; after 3 milligrams of tuberculin were injected, 9.%; after 5 milligrams of tuberculin were injected the eosinophiles disappeared. Reaction positive.

Case 5. Eosinophiles before the injection of tuberculin, 4.2%; after the injection of 1 milligram of tuberculin, 8.4%. Reaction positive.

Case 6. Eosinophiles before the injection of tuberculin, 3.8%, 1.6%; after the injection of tuberculin no increase in the eosinophiles. Reaction negative.

Case 7. Eosinophiles before the injection of tuberculin, 6.4% and 1.2%; after the injection of 5 milligrams of tuberculin, 4.0%. Reaction negative.

Case 8. Eosinophiles before the injection of tuberculin, 4.0%; after the injection of 3 milligrams of tuberculin, 8.8%. Reaction positive.

In these eight cases eosinophilia was seen after the injection of tuberculin for diagnostic purposes, in five cases and was absent in three cases. In the five cases in which the eosinophilia was observed there was a positive reaction. In the three cases in which eosinophilia was not found, the reaction was negative. One might draw two conclusions from these results: First, that eosinophilia is due to the fever accompanying a positive reaction. Second, after the injection of five milligrams of tuberculin in a person who is not suffering from bacillus tuberculosis infection, not enough tuberculin is administered to produce the eosinophilia.

The first conclusion must be rejected because all elevations of temperature are not accompanied by eosinophilia. The second conclusion may or may

not be justified. I have no evidence to offer upon that point.

DR. WILL HOWARD SWAN, of Colorado Springs, reported,

SIX CASES OF TUMOR OF THE LUNGS AND MEDIASTINUM SIMULATING PULMONARY TUBERCULOSIS.

These patients had been sent to Colorado at much sacrfice. One was a lymphosarcoma of the mediastinum in a woman aged 30. At autopsy it was found to be of the size of a child's head. No macroscopic evidence of tuberculosis anywhere. The second case was a primary carcinoma of the lung, in a man aged 53. He had slight expectoration for four months; lost 28 pounds and had moderate fever; sputum blood-stained a few times, but had shown no bacilli on several examinations; positive skin tuberculin test. At autopsy the left lung was a tumor mass.

The third case was of persistent thymus, possibly Hodgkins' disease, in a woman of 40. The others were of malignant disease. The diagnosis and clinical symptoms in all these cases were detailed. The differential diagnosis was gone into fully, but this was acknowledged to be impossible early in the course of these cases.

Book Reviews.

The Modern Treatment of Nervous and Mental Diseases. By American and British authors. Edited by WILLIAM A. WHITE, M.D., and SMITH ELY JELLIFFE, A.M., M.D., Ph.D. Vol. II. 8vo. pp. viii, 816. With 50 plates and 85 illustrations in the text. Philadelphia: Lea and Febiger. 1913.

The second volume of this new work on treatment has appeared very soon after the first, and confirms the favorable verdict pronounced upon its predecessor. This volume deals almost entirely with the diseases of the nervous system, diseases of the mind and some nervous diseases having been discussed in the previous volume. The first chapter, on the treatment of the neuralgias and neuritides, by Dr. S. I. Schwab, is wholly inadequate, omits various types of disease from any consideration, and neglects many important factors in treatment. Mr. James Sherren's chapter on the injuries of nerves, on the other hand, is, as might be expected, an admirable essay on the subject from the surgical standpoint. Dr. I. Abrahamson writes on muscular atrophies and dystrophies,—a chapter which contains considerable irrelevant matter, much overelaboration, and is rather unsatisfactory in its general aspect.

Dr. Jelliffe's chapter on the treatment of headaches is comprehensive and adequate. Dr. H. H. Hoppe sums up our knowledge of the treatment of spasmodic disorders satisfactorily. Dr. J. F. Munson's article on the treatment of the epilepsies is written from the asylum standpoint and is ill adapted for the general practitioner. He emphasizes the tendency to dementia, the inability to engage in productive labor, and the necessity of institutional treatment, and holds the New York prejudice against the use of bromides. The physician called upon to treat the epileptic with comparatively infrequent attacks, who shows slight tendency to mental deterioration, and who is out in the world earning his living and filling his place adequately in the community, will find little help in this pessimistic chapter. Dr. W. J. M. A. Maloney deals with the meningitides in an inadequate fashion, inserting a section on the meningeal form of poliomyelitis, and paying scant attention to otitic meningitis. The other cerebral complications of otitis, by the way, receive little attention. Dr. Jelliffe's long article on syphilis, supplemented by Dr. H. J. Nichols' chapter on salvarsan, is a very complete and exhaustive treatise on our present knowledge of all forms of syphilis of the nervous system, including the so-called "para-syphilitic" affections. It is very full and up to date and is the best chapter in the volume. Dr. Frederick Tilney contributes an over-elaborate but not especially complete chapter on the treatment of vascular lesions of the brain. Dr. S. A. Kinnier Wilson gives a clear and instructive account of the treatment of aphasia and apraxia. Dr. E. W. Scripture's article on stuttering is an excellent presentation of his own methods of instruction, which have proved so helpful in many cases. Dr. C. K. Russel discusses the treatment of the diseases of the cranial nerves and spinal cord in a somewhat incomplete manner. Dr. Gordon Holmes gives a clear account of diseases of the thalamus, mid-brain and cerebellum, with comparatively little to say, as might be expected, in regard to treatment. Dr. C. D. Camp's chapter on paralysis agitans and multiple sclerosis is of much value and presents the results of his own careful investigation of these diseases. Dr. Louis Casamajor sums up the treatment of the toxemias of dangerous trades and drugs. Drs. A. E. Halstead and R. T. Vaughan give an admirable summing up of the methods of surgical treatment of the brain and cord.

The editorial work in the present volume seems less thorough than it was in the previous volume. The selection of subjects is certainly open to criticism. We can see no satisfactory reason for assigning chapters on a purely anatomical basis, such as those assigned to Drs. Russel and Holmes, as if the location of a lesion had a special influence upon its treatment, except in regard to possible surgical interference. Furthermore, certain serious omissions are to be noted. Encephalitis, brain abscess and sinus thrombosis receive only cursory mention and tumors of the brain are considered very inadequately and in several different chapters. Nevertheless, in spite of these grave defects, and the other defects common to all composite works, there is much of value in this volume, which confirms the favorable opinion which we gave in the review of the first volume.

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A NEW LEPER HOSPITAL AT PENIKESE.

THE outcome of House Bill No. 136, providing for a hospital building at the leper colony on Penikese Island should be favorable, judging from all previous legislation regarding questions for the care and treatment of others of our Massachusetts population who are not more unfortunate. No one can question the imperative need of a modern building for the care and special treatment of the lepers. For a number of years Massachusetts has looked upon these unfortunates in any but a proper light. Deprived of their liberty, segregated on a most desolate island, and because of difficulties of administration, practically unprovided for from a medical point of view, these people have, until recently been allowed to exist and nothing more. It is undoubtedly the duty of the state to provide for them a hospital, baths and means for special medical treatment, as well as fire-proof living quarters. There should be no false economic reasons when it is a question of the duty of the state and of justice to persons in its care.

It was a matter for congratulation when the State Board of Charity, two years ago, began to insist forcefully that the unsatisfactory conditions at the Penikese institution must be supplanted by scientific medical treatment. Since then matters have improved, but are by no means to the credit of Massachusetts. Visitors to the island have had no difference of opinion as to the needs of the institution. The efforts of the State Board of Charity for a modern building with modern equipment is a step in the right direction.

Apart from the question of the care of the patients, it is well to pause and ask whether the state does not owe some protection to those individuals who are caring for the lepers. At the present time it is unlikely that the state can procure help with conditions such as they are; but there can be no reason why, with changes such as are planned, the state should not be able to attract and hold responsible and desirable persons to care for these unfortunate people.

We have had an opportunity of inspecting the hospital plans and approve of them most heartily. Every provision that a modern scientific institution should have has apparently been thought of, and when the legislature has provided funds for the erection of this building, we can afford to forget her past indifference and look with pride to the position which Massachusetts will take in the treatment and care of leprosy.

THE FEDERAL INCOME TAX AS IT AFFECTS THE PHYSICIAN.

To some of those whose income is derived mainly from fees for personal service of a professional kind, that provision of the income tax which requires that *debts* should be included as income seems unfair.

On the back of the blank form for income tax returns, there are two explanatory paragraphs which read as follows:

"13. Persons deriving fees or emoluments for professional or other services, as in the case of physicians or lawyers, should include *all actual receipts* for services rendered in the year for which return is made, *together with all unpaid accounts*, charges for services, or contingent income due for that year, if good and collectible."

"14. Debts which were contracted during the year for which return is made, but found in said year to be worthless, may be deducted from gross income for said year, but such *debts cannot be regarded as worthless until after legal proceedings to recover* the same have proved fruitless, *or it clearly appears that the debtor is insolvent*. If debts contracted prior to the year for which return is made were included as income in return for year in which said debts were contracted, and such debts shall subsequently prove to be worthless, they may be deducted under the head of losses in the return for the year in which debts were charged off as worthless."

It is inevitable, therefore, that many physicians have been confronted with the alternative

of paying the tax on a long list of debts or of placing the corresponding bills in the hands of a lawyer for collection.

The close personal relation between patient and physician, and the attitude of the conscientious practitioner who takes pride rather in the excellence of his work than in the return for the same combine to make it peculiarly embarrassing for him to resort to legal proceedings for the collection of bills. Rather than do this, we believe that some of our best physicians will pay the tax and fail to collect the money due them.

It seems pertinent to ask why the physician should be placed in this embarrassing position. Why was not the law so framed that the tax should be levied only on actual receipts of the year, exempting for this year income due before the law went into effect? This year's bills if not paid until next year could then have been included in next year's income and so on in succeeding years, and the individual would then be free from taxation on prospective income on the one hand, and on the other, he could, if he chose, dispense with legal means of collection without injustice to himself.

MEDICAL LEGISLATION. REGISTRATION OF NURSES.

THE members of the State Board of Nurse Examiners have found during the past three years that the benefit to be derived from the law which requires a nurse to take an examination before he or she can practice as a registered nurse, is more or less nullified by the fact that some nurses have in one way or another picked up enough knowledge to pass the required examinations, who, nevertheless, have not received thorough training. The board is unanimous in feeling that it should have the authority to send some suitable person to visit the schools that are undertaking to qualify nurses for state registration, in order to ascertain just what opportunity is given the pupils for practical and theoretical experience.

The Massachusetts State Nurses' Association is presenting a bill which embodies the recommendation that the board is making to the Public Health Committee. Dr. W. P. Bowers, secretary of the board, and president of the Massachusetts Medical Society, is going to present the nurses' bill at the same time the report is presented. Letters have been sent to superintendents of some of the largest hospitals and to several nurse superintendents of smaller hospitals in different parts of the state asking for endorsment or criticism of the bill which is to be presented. The replies have all been in favor of such an inspector. All honest schools are willing to be visited, and many are not only willing but are anxious to have some one to refer to who represents the State Board of Examiners. Such a person could be of great assistance in showing where schools are weak and in helping to remedy deficiencies if they exist.

It is believed that the Russell Sage Foundation will, in the not distant future, make an investigation of training schools similar to what has been done in connection with medical schools, and Massachusetts would be wise to authorize its state board, which consists of doctors and nurses, to prepare the way for this more disinterested investigation.

It is hoped that the medical profession will give its hearty support to this bill, House No. 1186.

AN UNFORTUNATE DECISION.

THE United States Supreme Court has recently ruled that in prosecutions under the pure food and drugs act, the government must hereafter "prove the presence of added poisonous or deleterious substance *in quantities sufficient to injure health.*" This is an unfortunate decision and will have the effect of greatly increasing the difficulty of enforcing this law, since it will remove from the reach of punishment such adulterations as, though perhaps harmless to health, are nevertheless frauds perpetrated upon an unsuspecting, unprotected, and defenceless public.

DEATH OF DR. ROTCH.

THE medical profession of Boston have suffered a great loss in the death, on Monday evening, March 9, of Dr. Thomas Morgan Rotch, professor of pediatrics in the Harvard Medical School. Dr. Rotch was not only of international eminence in his specialty, but was beloved in many families whose children he had cared for, and by many who gratefully remember, in their childhood, his always kind and pleasant personality as their physician.

MEDICAL NOTES.

A CASE OF SMALLPOX AT PITTSBURGH.—A case of smallpox was discovered on Feb. 28 among a

trainload of 300 immigrants at Pittsburgh, Pa. The patient was taken to the municipal hospital and all the passengers and train-crew were vaccinated.

Hospital Bequest.—The will of the late Wilson D. Kistler, of Lock Haven, Pa., it was announced on Feb. 25, contains a bequest of $30,000 to the local hospital.

BOSTON AND NEW ENGLAND.

Poliomyelitis in Massachusetts.—During the month of January, 1914, 14 cases of poliomyelitis were reported in Massachusetts, 4 of them being in Boston.

Tonsillitis in Wakefield.—During the past fortnight there has been prevalent in Wakefield, Mass., a local epidemic of streptococcus tonsillitis, similar to those which of recent years seem to have become increasingly prevalent in Eastern municipalities and smaller communities. In Wakefield there have been about 400 cases, without fatalities. The milk and the water supply have both been decided to be not the source of the infection, which in this case, as is probably usually the fact, is considered to have been air-borne.

Scarlet Fever in Bridgewater.—During the past three weeks scarlet fever has been epidemic at Bridgewater, Mass., where 25 cases of the disease have been reported. Local schools and places of public assembly have been ordered closed until March 17.

Instructive District Nursing Association.—At the annual meeting of the Boston Instructive District Nursing Association, held last week in this city, Miss Mary Beard, as director, presented her annual report in part as follows, describing the work of the Association for the previous year.

"For the year ending Jan. 31, the receipts for the general work of the Association were $72,180.47, and $61,718.58 was expended. Legacies amounting to $900 have been received for the permanent fund, together with donations amounting to $3,131.82. A legacy of $2500 was made to the reserve fund.

"Three new nurses were added to the staff Feb. 6, 1913. We have now 49 salaried nurses, 2 domestic educators (visiting housekeepers), 5 hospital pupils, and 20 students. Last year at this time there were 43 salaried nurses, 5 hospital pupils and 19 students.

"The greatest change in the staff has come through the gradual accomplishment of a plan adopted two years ago—that of acquiring a permanent staff rather than temporary nurses who changed from time to time. In this way 22 permanent staff nurses have been added since February, 1912, and 16 of the 22 since last February. This is the most important change which has occurred this year. All these nurses are graduates of one or the other of our courses in public health nursing, that is, they are women who want to do this sort of nursing more than any other work, are full of enthusiasm and have made sacrifices to obtain a special education for it. The supervisors have been longer in their positions and the machinery of the stations is running more smoothly—all of which means less fatigue and more efficiency.

"During the year we have had 10,536 new patients and made 120,597 visits, 600 more patients than a year ago and 10,000 more visits. One-half of these are free patients. Many of these 5000 free patients are 'free' patients only because illness in the family was the one last expense impossible to meet. Among them there have been a good many real 'problem cases,' known to many agencies and helped by them. Twenty per cent. were life insurance company patients, 2 1-3% paid 50 cents, 5 1-10% paid 25 cents, 17 1-10% paid less than 25 cents, 47 1-3% paid nothing. We nursed 3183 Boston Dispensary patients, or 30 1-5% of the whole."

Public Nurses Under Civil Service.—By a new ruling, made as a result of a movement initiated last fall by the Boston Milk and Baby Hygiene Association, all nurses employed by boards of health and school boards in Massachusetts have been placed under civil service rules, except in Boston, where they are governed by a special act of the legislature.

Medical Bequests.—The will of the late Rebecca Warren Brown, of Boston, which was filed recently for probate, contains a bequest of $10,000 to Harvard University, to be applied to the fund, created by Dr. Buckminster Brown, brother of the testatrix, for a professorship in orthopedic surgery. The residue of the estate is left in equal shares to the Perkins Institution for the Blind and the Industrial School for Crippled and Deformed Children.

NEW YORK.

Eugenic Marriage Bill.—Report from Albany states that on Feb. 26 a eugenic marriage bill was introduced before the State Assembly. The bill requires that to obtain a marriage license the applicant must present a physician's certificate that the former is "free from phys-

ical or mental disease likely to be contagious or hereditary."

REPORT OF NEW YORK MILK COMMITTEE.—The seventh annual report of the New York Milk Committee, published on Feb. 26, shows that during the seven years from 1907 to 1913, inclusive, 950,000 babies were born in New York City.

"If the infant death-rate of the five years previous had prevailed there would have been 150,000 infant deaths instead of the 109,000 which actually occurred. On the other hand, if New York's low death-rate of 1913, *i.e.*, 101.9 per 1000 births, had prevailed throughout the seven-year period, only 96,000 babies would have died out of the 950,000 born. The committee points out that this record is not due to favorable weather conditions nor to other general accidental causes. Returns from the larger cities throughout the country, for 1913, published in tabular form in this report, show that while New York made a further reduction in 1913 in the actual number of deaths over its low record of 1912, Chicago, Philadelphia, Cleveland, St. Louis, Pittsburgh, Detroit, Buffalo, New Orleans and Toledo all show an increase."

MENINGITIS ABOARD A GREEK STEAMER.—Four cases of cerebrospinal meningitis have recently developed on board the Greek steamer *Athenae*, which was detained on its arrival at this port on Feb. 28.

REPORT OF THE ST. LAWRENCE STATE HOSPITAL.—The recently published twenty-seventh annual report of the board of managers of the St. Lawrence State Hospital, at Ogdensburg, N. Y., to the State Hospital Commission, records the work of that institution for the year ended Sept. 30, 1913. During this period the total number of patients under treatment was 2294, of whom 1074 were men and 1220 women. There were 152 patients who died, upon 98 of whom autopsies were performed. The course in the training school has been lengthened to three years, on account of which no class was graduated this year.

NEW YORK DEATH-RATE.—There were 1812 deaths, or a death-rate of 16.93 per thousand of the population, reported during the week ending Feb. 28, 1914, against 1699 deaths, and a rate of 16.50, in the corresponding week of 1913, an absolute increase of 113 deaths and an increase of .43 of a point in the rate, equivalent to a relative increase of 46 deaths. The following causes showed a decreased mortality: Diarheal diseases, bronchitis, broncho-pneumonia, all other forms of tuberculosis, and Bright's disease of the kidneys. The mortality from measles, whooping cough and lobar pneumonia were approximately the same as that of the corresponding week of last year. The following causes showed material increases: Scarlet fever, diphtheria and croup, typhoid fever, cerebrospinal meningitis, influenza, diseases of the digestive system other than diarrheal diseases, diseases of the nervous system and organic heart diseases, the increased mortality of the last mentioned being more than that of the sum of all other causes.

The number of children dying under one year of age was exactly the same as that of last year; that of children under five years showed a slight decreasse; at all other age groups the mortality was greater, especially among the extremely aged.

The death-rate for the first nine weeks of 1914 was 15.00 per one thousand of the population as against the rate of 15.47 for the corresponding period of 1913, a decrease of .30 of a point.

Current Literature

MEDICAL RECORD.

FEBRUARY 21, 1914.

1. *CONNER, L. A. *Intravenous Injections of Sodium Salicylate in the Treatment of Rheumatic Affections.*
2. MCMURTRIE, D. C. *A Study of Prostitution in Europe.*
3. OPPENHEIMER, S. *The Surgical Anatomy, Diagnosis and Treatment of the Inflammatory Affections of the Nasal Accessory Sinuses in Children.*
4. SWIFT, G. M. *Carditis.*
5. HOLDING, A. F. *Technic in Radiotherapy, with Especial Reference to Deep Therapy as Practised at Freiburg by Krönig and Gauss.*
6. TANENBAUM, S. A. *A Consideration of Objections to Psychanalysis.*
7. OLMSTEAD, M. P. *The Value of Absorption Methods in the Wassermann Test.*

1. Conner discusses the merits of the intravenous method of administering salicylate of sodium in rheumatic infection. He says that the analgesic effect of the drug is more pronounced when given in this way, provided that the technic is correct and the preparation pure. The method is safe, painless and easy. Its application will probably be limited, but it offers something in cases where salicylate is not well borne by the stomach, where the ordinary method does not produce results, in cases with beginning heart involvement, and in rheumatic conditions of the eye. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 14, 1914.

1. COLE, L. G. *The Positive and Negative Diagnosis of Gastric Cancer by Means of Serial Roentgenography.*
2. KEILTY, R. A. *Note on Some Aneurysms.*
3. TURCK, R. C. *Intestinal Resection.*
4. WALTER, W. *Some Scientific Aspects of Inoculation Therapy.*
5. STEWART, F. E. *Besredka's Sensitized Vaccines.*
6. YEOMANS, F. C. *Amebic Dysentery.*
7. FREESE, E. M. *Magnesium Sulphate and Glycerine in the Treatment of Infections.*
8. WEISS, J. *Two Remarkable Cases of Obesity.*
9. WOODBURY, M. S. *The Technic of Outlining the Thyroid Gland.*
10. HEDIN, S. G. *Colloidal Reactions and Their Relations to Biology.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 14, 1914.

1. *VEDDER, E. B. *Origin and Present Status of the Emetin Treatment of Amebic Dysentery.*
2. *STURMDORF, A. *The Functional Metrorrhagias. Their Nature and Control.*
3. BEESON, B. B. *Neosalvarsan from the French Point of View.*
4. *NICHOLSON, S. T., JR., AND HOGAN, J. F. *Effect of Lactic Acid Bacilli on Diphtheria.*
5. KAPLAN, D. M., AND MCCLELLAND, J. E. *The Precipitation of Colloidal Gold. A Specific Reaction in the Spinal Fluid.*
6. ROBINSON, C. J., AND MUELLER, J. H. *An Improved Technic for the Doremus-Hinds Ureometer.*
7. BUNTING, C. H., AND YATES, J. L. *An Etiologic Study of Hodgkin's Disease. Second Note.*
8. WEISENBACH, R. R. D. *The Correction of the Fixed Structural Type of the Spinal Lateral Curvature.*
9. SMITH, O. C. *Hygroma Cysticum Colli and Hygroma Axillae.*
10. WACHT, D. T. *Action of the Nitrites on the Isolated Surviving Pulmonary Artery. Preliminary Note.*
11. BARACH, J. H. *The Energy Index. Cardiovascular Energy as Indicated by the Arterial Pressure per Minute.*
12. BERKOWITZ, M. E. *The Practical Side of Deratization with Flue-Gas, with Special Reference to the Port of Philadelphia.*
13. DONNELLY, W. H. *Basic Fuchsin in Surgery. Its Wide Range of Usefulness.*
14. FAUGHT, F. A. *Significance of Elevated Blood-Pressure in Pregnancy.*
15. MCNEIL, H. L. *Experiences with Noguchi's Luetin Test for Syphilis.*
16. WALKUP, J. O. *Hemorrhagic Hypernephritis, with Report of Case.*
17. VOGEL, K. B., AND LEE, O. I. *Detection of Mercury in the Excretions.*
18. MCCASKEY, G. W. *A Case of Amebic Dysentery of Thirteen Years' Duration Cured by Emetin Hydrochlorid.*
19. BEEKMAN, F. *A Case of Mercuric Chlorid Poisoning Due to Vaginal Douches.*
20. HOLMES, A. O. *Defaced Type of Addison's Disease.*

1. Vedder claims emetin is a true specific in amebic dysentery and hepatitis, and the results obtained compare favorably with those of salvarsan in syphilis. The hypodermic use of the hydrochlorid is the preferred method and McCaskey reports the cure of a case of thirteen years' standing in this way.

2. Sturmdorf condemns the use of ergot in the functional metrorrhagias and advises the use of vaso-dilators, such as aconite, nitroglycerin and atropin, under the guidance of a pressure apparatus, and with the aid of opium.

4. The authors find a spray of live lactic acid bacilli valuable in diphtheria. The course of the disease seems shortened and no ill effects result. [E. H. R.]

FEBRUARY 21, 1914.

1. VAUGHAN, V. C. *The Phenomena of Infection.*
2. RODMAN, W. L. *Gastric Tetany.*
3. POST, W. E. *The Effect of Tartrates on the Human Kidney.*
4. MILNE, L. S. *Chronic Arthritis.*
5. SCHMITTER, F. *Hydrophobia in a Wild Philippine Monkey.*
6. *BALL, C. F. *Abderhalden Serodiagnosis of Cancer, with a Tabulation of Results Obtained in Fifty Examinations.*
7. *LEWIS, D. D., AND DAVIS, C. B. *Repair of Tendons by Fascial Transplantation.*
8. CLIMENKO, H., AND FELBERBAUM, D. *The Diagnosis of Spinal Cord Tumors, with Report of Two Cases.*
9. *GAYLER, W. C. *The Dorsal Position During the Puerperium as a Cause of Retroversio Uteri.*
10. THOMAS, B. A., AND MOORHEAD, S. W. *Severe Cutaneous Eruption Following Neosalvarsan. Report of Two Cases.*
11. INGALS, E. F., AND FRIEDBERG, S. A. *Fluoroscopic Bronchoscopy. Report of Case.*
12. LESZYNSKY, W. M. *Traumatic Epilepsy. Report of a Case of Five Years' Duration Cured by Surgical Treatment.*
13. WELTY, C. F. *Anastomosis of the Facial and Hypoglossal Nerves for Facial Paralysis.*
14. LUND, F. B. *Comminuted Gunshot Fracture of the Femur, with Fixation by Bone-Plate and Wires.*

6. Ball's article is very thorough and gives in detail the steps of the technic.

7. This is an interesting bit of work on fascial transplants.

9. Gayler is firmly of the opinion that the dorsal position during the puerperium is a large factor in the causation of retroversion of the uterus. His argument is convincing. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

FEBRUARY, 1914.

1. *DAVIS, D. M. *Intestinal Obstruction: Formation and Absorption of Toxin.*
2. *DAVIS, D. M. *Natural Immunity of Animals Against Poison of Intestinal Obstruction.*
3. MILLER, W. S. *Niels Stensen.*
4. PEARCE, R. M. *A Brief Historical Sketch of Some of the Early Studies of the Finer Structure of Plant and Animal Tissues.*
5. MCMURTRIE, D. C. *Early History of the Care and Treatment of Cripples.*

1. Davis shows that the duodenal and upper jejunal mucosa, unaided by bacterial action, can produce a highly toxic substance, although the conditions may be not far removed from normal. He describes in detail the experiments which led to this conclusion.

2. This second paper by Davis describes the effects of inoculating animals with the highly toxic substance mentioned in the preceding article, and unsuccessful attempts to neutralize this poison. [J. B. H.]

THE LANCET.

JANUARY 24, 1914.

1. *EMERY, W. D'E. *The Pathology of Syphilis, Especially in Its Bearing on Treatment.*

2. HAWTHORNE, C. O. *Dosage: Some Suggested Amendments in the Manner of Stating the Doses of Medicines in the British Pharmacopoeia.*
3. *WILLAN, R. J. *The Bismuth Ureteral Catheter. Collargol Solution and Barium Sulphate Suspension in the Diagnosis of Some Urinary Diseases.*
4. MANN, G. *Protein Metabolism During Starvation and after the Administration of Milk Protein.*
5. HARDINN, H. G. A. *The Toleration of Aresnic by the Human System.*

1. In this short paper Emery discusses the pathology of syphilis, the causative organism, the invasion of the blood by spirochaetes, the processes in the secondary period, the Wassermann reaction, the action of drugs and other points. He considers what is called parasyphilis and takes up the curability of the disease, syphilis, in its various stages.

3. In an article illustrated with some excellent plates, Willan describes the catheterization of the ureters with the bismuth ureteral catheter in which he uses collargol solution. [J. B. H.]

JANUARY 31, 1914.

1. *BOSANQUET, W. C. *Tuberculosis as an Infective Disease.*
2. *LETT, H. *The Present Position of Acute Appendicitis and Its Complications.*
3. HOWELL, C. M. H. *Trauma in Relation to Certain Aspects of Nervous Disease.*
4. *LECKIE, R. J. B. *The Percutaneous Tuberculin Reaction.*
5. PORTER, W. G. *A Case of Post-operative Osteomyelitis of the Frontal Bone. Recovery after Wide Removal of the Diseased Bone.*
6. NEGUS, V. E. *A Case of Acute Tetanus with Recovery.*
7. HORDER, T. J. *Vaccines from the Standpoint of the Physician.*

1. In this paper, Bosanquet discusses the organism of tuberculosis, bovine and human, the modes of infection, causes of disease in later life, the incidence of tuberculosis, the forms of disease, and the methods of resisting it, and the decline of tuberculosis mortality and its causes.

2. This is a clinical paper discussing appendicitis, forms and complications, mortality in regard to time of operation, when to operate, etc. It presents nothing new.

4. Leckie presents data to show that the percutaneous tuberculin reaction (Moro ointment test) is of little or no value. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 17, 1914.

1. *MITCHELL, A. P. *The Infection of Children with the Bovine Tubercle Bacillus.*
2. *ROBINSON, W. *Torn Semilunar Cartilages.*
3. MORT, S. *A Possible Fallacy in the Diagnosis of Internal Derangements of the Knee-joint.*
4. HUGHES, B. *The Treatment of Fractures about the Elbow-joint and Knee-joint.*
5. CONNELL, R. *The Use of Ionic Medication in the Treatment of Certain Venereal Diseases.*
6. JARDINE, R. *Rapid Delivery in Eclampsia.*

1. Mitchell in this paper discusses (*a*) technic, (*b*) relationship of clinical data and milk supply, (*c*) relation between channels of infection and groups of glands involved, and (*d*) channels of infection. Under technic he describes his methods of studying 72 consecutive cases of tuberculous cervical glands in children; this part of the paper is very technical, describing variations in growth of the different strains of bacilli, differences between human and bovine types, culture media, etc. In the next part of his paper he describes his results. Of these 72 cases, 65, 90%, were due to the bovine bacillus, and 7 cases, 10%, to the human organism. As to age incidence, he comes to the natural conclusion that the use of unsterilized cows' milk is responsible for the large number of cases due to bovine origin in the very young children, 84% of whom were bottle fed. He could not find that one type of child was liable to this disease. There was seldom any interference with general health, many being in robust health. In only 3 instances could family exposure or a family history be obtained. He goes on to show the very large amount of tuberculosis among cattle in and around Edinburgh and urges more efficient legislation on the subject. He then considers the channels of infection and describes the groups of glands involved. In his experience there are two types of glands involved, one those showing little or no tendency to break down; and the other, those in which caseo-necrotic changes are the distinctive features. He believes the mouth and the naso-pharynx to be the avenues of infection. Out of 64 cases of tuberculous cervical adenitis, in 37.5% lesions of the tonsils were evident. His conclusions are sane and sound.

2. Robinson in a short paper discusses the anatomy, mode of production, diagnosis and treatment of torn semilunar cartilages, and describes 24 cases. [J. B. H.]

JANUARY 24, 1914.

ADDRESSES ON CHRONIC INTESTINAL STASIS.

1. ADAMI, J. G. *"Autointoxication" and Subinfection.*
2. *PRINGLE, S. S. *Anatomy and Treatment.*
3. GRAY, H. M. W. *Etiology and Treatment.*
4. CHAPPLE, H. *Effects on the Female Generative Organs.*

1. In this paper Adami combats strongly the well-known views of Arbuthnot Lane on auto-intoxication, etc., concluding that it is more rational to regard the evil effects of intestinal stasis as a low form of infection than as a chronic intoxication. He believes the term gastro-intestinal auto-intoxication to be a much abused one, which should be dropped. Many of the symptoms attributed by Lane to intestinal stasis may arise from other causes, and therefore, before recommending the operation of short circuiting fullest investigation should be made. Usually other causes will be found which will render this unnecessary. (This is a timely article and a much needed one.—J. B. H.)

2. Pringle considers the various anatomical abnormalities which may cause stasis, such as ptosis, bands, folds, membranes, etc. These he describes in some detail. He takes up the symptoms, toxic and obstructive. Under treatment he considers prophylaxis, medical and surgical measures. [J. B. H]

JANUARY 31, 1914.

1. BLAND-SUTTON, J. *Linitis Plastica, or Leather Bottle Stomach.*
2. O'CONNOR, J. *Two Years' Operating to the Clock.*
3. BARRATT, J. O. W., AND YORKE, W. *The Production of General Symptoms in Hemoglobinemia.*
4. ROLLESTON, H. D. *A Case of Eosinophile Arcitis; with Remarks.*
5. SAUNDLY, R. *Syphilitic Paresis of the Esophagus.*
6. ALDONS, G. F. *The Importance of a Leucocyte Count in Doubtful Cases of Appendicitis.*
7. DRUMMOND, H. *Observations on the Functions of the Colon, with Special Reference to the Movements of Enemata.*
8. COPE, V. C. *The Pre-Peritonitic Stage of Acute Appendicitis.*

9. HENDERSON, J. B. *Alternative Methods of Treating the Appendix Stump.*
10. HUGHES, B. *Appendicitis, with Symptoms Resembling Those of Renal Colic.*

EDINBURGH MEDICAL JOURNAL.

FEBRUARY, 1914.

1. *BÉRANECK, E. *Tuberculin: The Rationale of Its Use; Its Possibilities and Limitations.*
2. RITCHIE, J. *Neurasthenia.*
3. *WATSON, D. C. *Manifestations and Treatment of Intestinal Toxemia.*
4. GUTHRIE, D. J. *On the Neosalvarsan Treatment of Syphilis.*
5. CRESWELL, C. H. *The Royal College of Surgeons of Edinburgh; Anatomy in the Early Days.*
6. *MILLER, J. *The Prevalence of Living Tubercle in Edinburgh Milk.*

1. This article describes in considerable detail the complex subject of the rationale of tuberculin therapy. The writer devotes considerable space to the preparation of that form of tuberculin with which his name is connected and describes experiments to substantiate his claims. He is of the opinion that tuberculin should be regarded as *a curative*, and not an immunizing agent. He describes the methods of administering his tuberculin as to dosage, etc. He urges early tuberculin treatment as soon as the diagnosis is established, ruling out, of course, all acute advanced cases.

2. This is a short general clinical article on the prevention and cure of certain forms of nervous exhaustion coming under the general term neurasthenia. There is much sound common sense advice in this paper.

3. In a long paper Watson takes up the pathological basis for intestinal toxemia as shown by constipation, catarrh of the large bowel, dilatation, adhesions, kinks, etc. He considers the factors regulating normal intestinal functions and evidence of normal functioning as shown in the stools and urine. He devotes much space to the diagnosis of intestinal stasis, as shown by x-rays, and takes up briefly the clinical conditions induced by intestinal toxemia, such as those under the neurasthenic group, the rheumatoid group and the dyspeptic group. He describes briefly the so-called Lane's kink, Jackson's membrane, and various other kinks and malformations.

6. Miller confirms the work of Fraser and Mitchell, and explains the large amount of bovine tuberculosis in Edinburgh by analyzing samples of milk in that district, in 13% of which (104 samples) he found live tubercle bacilli. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 4. JANUARY 27, 1914.

1. ROLLY, F., AND DAVID, H. *Overproduction of Sugar in Relation to the Etiology of Human Diabetes.*
2. V. FUNK, F. *Retroduodenal or Transduodenal Choledochotomy.*
3. *JAFFÉ, R. *Autopsy Findings and Animal Experiments in Benzin Poisoning.*
4. *SIMMONDS, M. *Secondary Hypophyseal Tumors and Their Relation to Diabetes Insipidus.*
5. WEBER, F. *Tamponade in Pregnancy and Gynecology.*
6. FREY, E. K. *The Origin and Treatment of Fistula Ani.*
7. KLAUS, H. *"Narkophin" in Pregnancy.*
8. SCHOENLANK, W. *Experiments in Artificial Pneumothorax.*
9. LÖWENTHAL, S., AND PAGENSTECHER, A. *Intensive or Continuous Treatment by Rays?*
10. FUCHS, A. *Animal Experiments with "Tubural."*
11. KREUTER. *Perineal Enucleation of the Prostate.*
12. HOFFMANN. *Potassium Chloride in the Treatment of Hay Fever.*
13. GRUBER, K. *Thinking Animals.*
14. *Edwin Klebs.* (*To be concluded.*)
15. NEISSER, M. *The Murder Trial of Hopf.*

3. Jaffé reports the histological changes found in various cases of fatal benzin poisoning. These observations were confirmed by a series of experiments in which animals were killed with benzin introduced either intravenously or by mouth. The poisoning is either acute or chronic, depending on rapidity of absorption. In acute cases the drug is excreted through the lungs, producing characteristic minute hemorrhage; in cases of chronic poisoning it causes degenerative foci in the liver and kidneys. No chemical changes or evidences of hemolysis were found in the blood. The lesions in both man and animals were essentially similar.

The practical significance of this study is that since benzin is taken up from the intestines slowly, active purgation is always recommended as a therapeutic means.

4. Simmonds reports three examples of secondary tumors in the hypophysis which appeared to produce symptoms of diabetes insipidus. He has seen six other cases, however, with lesions through the entire hypophysis where there was no polyuria.

The literature on the subject points to the belief that hypophyseal destruction and diabetes insipidus are closely related. Despite his latter findings, Simmonds does not consider this disproven.

He concludes that hypophyseal metastases are relatively common in malignant disease and believes that polyuria may be an early symptom of this peculiar lesion. [R. F.]

Correspondence.

RECIPROCITY.

SAN FRANCISCO, Jan. 29, 1914.

Mr. Editor: I am enclosing a letter from Doctor Alderson who is a member of the California State Board of Medical Examiners, in reply to a letter I wrote to him asking why the medical license of Massachusetts was not accepted by the California State Board.

I thought perhaps it might be a weapon which you could use to effect a change in Massachusetts requirements, for you know that all the men coming out to California at least, cannot have reciprocity with Massachusetts. Fortunately I had an Ohio license which procured affiliation for me.

Hoping that this enclosure may be of some use, I am

Yours sincerely,

WILLIAM PALMER LUCAS, M.D.,
Professor of Pediatrics,
University of California.

[ENCLOSURE.]

SAN FRANCISCO, Jan. 6, 1914.

My dear Dr. Lucas: In reply to your inquiry regarding the status of Massachusetts State Medical licenses, I beg to state that the California State Board of Medical Examiners has refused to grant reciprocity licenses to applicants presenting Massachusetts State licenses. The reason for this unfortunate state of affairs is that Massachusetts does not

require an M.D. degree of applicants who come up for examinations for licenses.

Regretting very much that this is the case, I am

Cordially yours,

HARRY E. ALDERSON, M.D.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 28, 1914.

February 20, Medical Director C. F. Stokes, detached from Bureau of Medicine and Surgery, Navy Department, and ordered to command Naval Hospital, Philadelphia, Pa.

Medical Inspector G. A. Lung, detached from command of naval hospital, Philadelphia, Pa., and ordered to Naval Training Station, Newport, R. I.

Surgeon J. F. Leys, detached from Naval Training station, Newport, R. I., and ordered to duty in connection with the fitting out of the *New York* and to duty on board when that vessel is placed in commission.

Medical Inspector L. W. Spratling, detached from Naval Recruiting Station, Atlanta, Ga., and ordered to duty as fleet Surgeon of Atlantic Fleet, *Wyoming*.

P. A. Surgeon C. E. Strite, ordered to the Naval Recruiting Station, Atlanta, Ga.

Surgeon H. D. Wilson, detached from the Naval Recruiting Station, Boston, Mass, and ordered to the *New Jersey*.

Assist. Surgeon E. P. Halton, ordered to Naval Recruiting Station, Boston, Mass.

February 24, Surgeon R. F. Sheehan, detached from marine advance base brigade of Atlantic Fleet to home and wait orders.

P. A. Surgeon J. P. Haynes, ordered to the Naval Training Station, Great Lakes, Ill.

P. A. Surgeon E. L. Woods, detached from the Naval Proving Grounds, Indian Head, Md., directed to wait orders.

Feb. 26, P. A. Surgeon H. L. Dollard, detached from the *North Dakota* and ordered to the Naval Hospital, New York for treatment.

P. A. Surgeon P.R. Stalnaker, ordered to the *North Dakota*.

MASSACHUSETTS GENERAL HOSPITAL.

SURGICAL MEETING.

A surgical meeting open to the medical profession will be held at 8.15 p. m. on March 13, 1914, in the lower amphitheatre of the Out-patient Department. Entrance on either Blossom or Fruit Streets.

Dr. G. W. W. Brewster will present "Report on Cases of Pelvic Inflammation."

Dr. Lincoln Davis will present "Report on Cases of Renal Surgery."

FRANKLIN COUNTY DISTRICT MEDICAL SOCIETY.

The bi-monthly meeting of the society was held in Greenfield, January 13th. A letter was read with reference to a bill now before the legislature regarding the revelation of professional secrets in court on the part of physicians and nurses. The suggestion offered was that the words "not be urged" should be changed to "not be compelled." Dr. G. P. Twitchell of Greenfield read a paper on the Treatment of Gastric Ulcer. The paper was discussed by Drs. H. G. Stetson and Charles F. Canedy of Greenfield and by Dr. Philbrick of Northfield. Dr. Paul W. Goldsbury of Warwick read a paper on Observations on the Sense of Smell and gave a demonstration.

SOCIETY NOTICES.

THE HARVEY LECTURE.—The tenth lecture will be delivered on Saturday, March 14, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d Street, by Prof. W. T. Halsted, of Johns Hopkins University.

Subject: "The Significance of the Thymus Gland in Graves' Disease."

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 17, 1914, in the amphitheatre of the Administration Building of the Harvard Medical School, at 8.15 o'clock.

Program:

Dr. Otto Folin and Dr. W. Dennis: "An Interpretation of Creatine and Creatinine in Relation to Animal Metabolism." (20 minutes.).

Dr. L. W. Hackett: "A New Air Filter." (20 minutes.)

Dr. H. T. Karsner, Mr. H. H. Amiral and Mr. A. V. Bock: "A Study of the Influence of Splenectomy on Hemopsonins in the Blood and in Various Organ Extracts." (15 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Surgical section meeting, John Ware Hall, Wednesday, March 18, 1914, at 8.15 p. m.

"Brain Tumors," Dr. E. H. Nichols. Discussion by Drs. P. C. Knapp, J. J. Thomas and E. W. Taylor.

Light refreshments after the meeting.

FRED B. LUND, M.D., *Chairman*.
HORACE BINNEY, M.D., *Secretary*.

RECENT DEATHS.

DR. LAZARUS SCHONEY, who died on Feb. 18 in Coney Island, N. Y., was born at Budapest, Hungary, in 1838. He studied medicine at Prague, and, after coming to the United States in 1860, at the University of Pennsylvania. He served during the Civil War as a surgeon in the Union army, and subsequently was pathologist for a time at the Lincoln General Hospital, Washington. In 1868 he settled in the practise of his profession at New York City. He became professor of pathology in the New York Medical College, and was the author of several works on pathology and biology. He is survived by his widow.

DR. JOHN FREDERICK WELCH, who died on Feb. 23 in Quincy, Mass., was born at Boston in 1854. He received the degree of M.D. in 1880 from Bellevue Hospital Medical School, New York. He immediately settled in the practise of his profession at Quincy, where he was for several years city physician and member of the local board of health. He was a Fellow of The Massachusetts Medical Society, a member of the Norfolk South Medical Society, and president of the Quincy Medical Club. He was consulting physician and secretary of the Quincy Hospital. He is survived by his widow, one daughter, and a son.

DR. IRA HOPKINS of Utica, N. Y., died on Feb. 23, at the age of 80 years. He was graduated from the medical department of the University of Buffalo in 1859.

DR. ANNA MARLIN CORNWALL, who died on March 1, at Brookline, Mass., received the degree of M.D. in 1906 from the Tufts Medical School. She was a Fellow of The Massachusetts Medical Society.

DR. FRANK SARGENT GRANT, of New York, a graduate of the College of Physicians and Surgeons in 1875, died on March 3.

DR. JOHN PRINGLE, of East Newark, N. J., died from pneumonia on February 25, at the age of 68. He was a native of Glasgow, Scotland, and was graduated from the University of Glasgow in 1875. Dr. Pringle had been president of the East Newark Board of Health since its organization a few years ago.